POPULAR
Computing
WEEKLY

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16–22 October 1986

Vol 5 No 42



Commodore plans 'fat' 64 micro

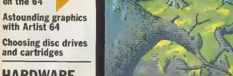
Full story on page 6

COMMODORE 64

The Pawn – now out on the 64

Astounding graphics with Artist 64

Choosing disc drives and cartridges



HARDWARE

Apple IIGS – An Amiga performance for less than £1000?

NEWS DESK

Amstrad scuppers the clones

Saga confirms Compliment launch at Microfair

REVIEWS

Dandy
Arena
Fist II
and more

starts on p 14



		SPECTRUM	SPECTRUM	C/DORE	C/DORE	C/DORE	AMSTRAD	AMSTRAD	AMSTRA
		48/128	128	64/128	64/128	128	464/664/6128	664/6128	6128
		TAPE	TAPE	TAPE	DISK	DISK	TAPE	DISK	DISK
THE ART STUDIO	OCP	14.95	–	14.95	17.95	–	–	–	19.95
ADVANCED ART STUDIO	OCP	–	24.95	–	D	–	–	–	D
THE MUSIC SYSTEM	SYSTEM & ISLAND	–	–	14.95	17.95	–	15.95	19.95	–
ADVANCED MUSIC SYSTEM	SYSTEM & ISLAND	–	–	–	39.95	–	–	29.95	–
STARGLIDER	ARGONAUT	–	–	D	D	–	D	D	–
TRACKER	UNION SOFTWARE	D	–	14.95	17.95	–	D	D	–
THE PAWN	MAGNETIC SCROLLS	–	D	–	19.95	19.95	–	–	24.95
JEWELS OF DARKNESS	LEVEL 9	14.95	–	14.95	14.95	–	19.95	19.95	–
SILICON DREAMS	LEVEL 9	D	–	D	D	–	D	D	–

VERSIONS MAY VARY FROM DESCRIPTIONS ABOVE



AMSTRAD PCW DISK	ATARI 800/130 TAPE	ATARI 800/130 DISK	ATARI ST DISK	MSX TAPE	APPLE 2 SERIES DISK	IBM CMPTBLES DISK	AMIGA DISK	MAC 512/PLUS DISK
–	–	–	–	–	–	–	–	–
–	–	–	D	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	[illegible]
–	–	–	24.95	[illegible]	D	D	D	D
–	–	–	D	–	–	D	–	D
–	–	D	24.95	–	19.95	D	24.95	24.95
19.95	14.95	14.95	19.95	19.95	D	D	19.95	D
D	D	D	D	D	D	D	D	D

VERSIONS MARKED D ARE UNDER DEVELOPMENT

Contents

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ABC

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Commodore plans expanded Ram for 64

COMMODORE is planning a series of launches in its 64/128, Amiga and PC ranges in the next few months. The Amiga range is to be expanded to include an entry-level machine with 512K and single disc drive for around £600 (see *Popular Computing Weekly*, September 18) while the 64 and 128 are to get a series of expansion packs that expand their memory by up to 512K.

According to Commodore UK general manager Chris Kaday there are no specific plans to design new versions of the machine that have this amount of Ram on board but he concedes that "as Ram gets cheaper it's a distinct possibility".

The fact that Commodore's main competition in the next year or so is liable to come from the Atari ST and from PC compatibles must however mean that it is more than a possibility, since if the company is to maintain its position in the home market it must produce powerful machines at a price the market is willing to pay. A cheaper Amiga is one part of the strategy, but an expanded 64 would allow Commodore to differentiate better between its home and business ranges.

The add-on Ram for the 128, the 1750, is already out in the US, priced at $199 (around £130), with the 1764 pack for the 64 to follow shortly. Kaday currently can't say when the packs will arrive in this country, or what they'll cost, but in all probability they'll be with us soon, probably early next year.

The 128D. A clue to the new range?



Compliment launches at ZX Microfair

SAGA'S Compliment expansion unit for the Spectrum is to be launched at the ZX Microfair on 25 October. The unit, which consists of new keyboard, parallel interface, joystick port, disc drive, printer and bundled software will cost £344.

From the point of view of existing Spectrum owners the Compliment bundle looks good value. The disc drive is an Opus Discovery, which retails at £115, while the Compliment printer is a high quality 150 cps device. The addition of keyboard and software (*The Last Word, Trans Express, Masterfile* and *Omnicalc*) make the system substantially cheaper than the sum of its parts.

With the Amstrad 6128 and PCW 8256 as competition the Compliment looks less plausible as a completely new system, as the addition of Spectrum and monitor would bring the cost up to £500—£550 and the Amstrad machines are around £300 for 6128 (without printer) and £460 for 8256, but although a Compliment system would have less Ram (48K or 128K depending on the model used) it does have advantages.

White. Software on menu

The Discovery, for example, uses cheaper $3\frac{1}{2}$ inch discs, while the Compliment's printer is superior to the 256's. The software position is less clear cut, as while the Spectrum has vastly more entertainment software, it doesn't have access to the CP/M programs the PCW does, but this will be a matter of choice for individual users.

David White of Saga is particularly keen to extol the virtues of the Compliment Operating Environment, a menu-driven system that allows the applications to be loaded without recourse to Sinclair Basic.

Atari appoints former Commodore manager

ATARI'S new UK managing director is Bob Gleadow, who until recently was vice president with responsibility for Asia at Commodore International. Gleadow was with Commodore for 12 years, and was general manager of Commodore UK for the six years up to 1983, a time when Commodore under Jack Tramiel was threatening to engulf the world.

Tramiel left Commodore and took over Atari in 1984, and Gleadow is the latest of the Commodore old guard to follow him there. As the man who unleashed the Commodore 64 on Europe (Hanover Fair 1982) he's something of a catch for Atari, and is expected to begin beefing up the company's marketing profile in the next few months.

A new UK marketing manager to replace Rob Harding, who left Atari recently in what was described as a "career move", is due to be appointed by Gleadow shortly.

Alpha backup system has it taped

ALPHA Microsystems has launched a videotape based backup device for the Amstrad PC. It takes the form of an interface which plugs into the machine's expansion port and allows data to be stored on a standard video recorder. A two hour videotape will hold up to 80Mb of data.

The device, which costs only £365, allows multiple copies of data to be recorded, and for people with access to a video recorder provides a low-cost alternative to tape streamers for hard disc backup.

Details from Alpha Microsystems, Berkshire House, 56 Herschel Street, Slough, Berks SL1 1PY. Tel 0753 821922.

Karate tops US charts

SYSTEM 3's *International Karate* has reached number one in the US software charts. The game is sold there by US software house Epyx, and is the second British game to top the US charts, the first being Firebird's *Elite*, which has been ringing tills round at ST since the CES show in the spring.

BT rubbishes closure story

SUGGESTIONS that British Telecom was about to pull out of the software business and close Rainbird, Firebird and Beyond were strongly denied last week Head of BT Telecomsoft Ed Williams said that the position of BT s software labels was if anything, improving and that British Telecom remains committed to games software '

The suggestions of trouble appear to be based on a deadline set by BT in April, which stated that the Telecomsoft division had a year in which to show a profit, with reviews every three months According to one insider the first two reviews failed to show a profit, and the departures of Francis Lee from Beyond, Tony Rainbird from Rainbird and Barry Lewis, until recently head of Telecomsoft have added weight to speculation that something was wrong

"We're coming up to a very crucial period this Christmas, says Williams, and he admits to having spelled out to staff that the labels' BT parent doesn t have ' infinite patience ', but he points out that much of the stable is starting to come good

A lot of good things have happened recently, he says "Firebird has just done a large deal with Ariola for £1 million worth of exports to Germany ' And, he says, 'Firebird Licensees turned in its highest sales figures ever in September

At the same time Rainbird has hits like *The Pawn* and *Star Glider* under its belt, and Firebird itself is scoring chart successes

Beyond is not, however currently sharing in that success and seems close to missing the Christmas market with *Star Trek*, this year s big production number The ST version of the game is nearly ready says Williams, but it still has to be approved by Simon and Shuster the US publisher which licensed the title to Beyond Alongside this, 8-bit conversions of the game have proved to be ' very complicated

January launch for Philips MSX 2

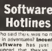
PHILIPS is thought to be planning to release its MSX 2 micro in this country, although the company denies that the machine will be launched here as a standalone machine According to Steve Paul, marketing manager of Philips consumer electronics division, it s probable that when it arrives here it will be sold as part of a complete video-based system rather than into the home computer market

Such a system would use a laser disc and the MSX 2 machine to edit digitised video frames, add subtitles and so on Pamela Ladd of Philips' interactive media systems division, which is likely to be handling any such system refused to comment on potential launches, but said that further information might be available shortly

If Philips does take the video route it will be following on JVC's initiative The latter company sees video and audio as logical paths for the MSX standard to take, and has configured its MSX 2 machine to attack vertical markets in these areas

Graham Knight of leading MSX dealers Knight Computers has sold a number of JVC machines, and confirms this

'We re selling to people who are video buffs, and the machines go in the same way as Video 8 and video cameras '



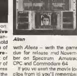
Who said there was no money in adventures? **Incentive Software** has just announced that they ve sold one million pounds worth of **Graphic Adventure Creators** – and that s a lot of pixies Of the vast number of GAC generated adventures received by the company the best are given the Gold Medallion Award indeed Incentive will be marketing the first two of these, *Apache Gold* and *Winter Wonderland* towards the end of November for £7 95 Which strikes me as being rather a lot

How s this for bad taste? Remember *Mad Doctor* – in which you had to dig up graveyards in search of limbs to make up your Frankenstein? Now try *Mad Nurse* from **Firebird**

In this game, you control a variety of nurses (with names such as Brenda Bumwash yes it is that tasteless), running around levels of a ward, picking up babies before they stick their cute little fingers down electric sockets or swill the contents of specimen bottles – both hilariously fatal

Conservative MPs will be outraged Boots will ban it and it's a sure fire hit File it under 'warped' along with *Di s Baby* and *Driller Killer*

Electric Dreams seems to be coming along nicely



Alien

with *Aliens* – with the game due for release mid November on Spectrum Amstrad CPC and Commodore 64

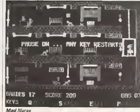
If you ve seen the movie (or clips from it) you'll remember that one of the main action sequences has a platoon of Space Marines working their way through the Alien infested complex

Aliens The Game has you controlling six marines from the Mobile Tactical Operations Base selecting one at a time and viewing the complex through their own personal TV cameras The general aim of the game is to shoot, maim, kill, etc – with the ultimate aim of getting the team through to the Alien Queen s lair, but has significant strategic factors if the Aliens take over the generator room for instance it all goes dark

Hey! Remember *Nexus* – the pencil case that came with a free computer game? Well now **Nexus** (the company) has announced its next release for the 64 – *Assault Machine* Can t wait

The **US Gold** juggernaut rolls on – it s signed up US biggies **Broderbund** – that means £2 99 oldies

John Cook



Mad Nurse

Amstrad block on clone Wordstar

AMSTRAD'S entry into the business software market seems to have run into trouble before it has even started. According to MicroPro, which produced *Wordstar 1512* for the Amstrad PC, the program will run on practically any PC compatible machine. But it appears that Amstrad, which has sole publishing rights to the program, has doctored it so that it will not — not even on an IBM PC.

The problem lies in the installation procedure, which has been modified so that it is specific to the Amstrad PC. It is possible to install the program so that it will work with other compatibles, but not by using the install program on the discs supplied by Amstrad, as this seems to be where the "log breaker" has been inserted.

MicroPro's technical support department was unaware of the problem when contacted, while Amstrad technical support said it couldn't help, and asked for the query to be put in writing. Such queries are then apparently forwarded to MicroPro.

Reception at the latter incidentally suggests that queries about *Wordstar 1512* should be taken up with Amstrad.

In default of support from author or publisher it's the dealers who will have to fend off most of the queries. Softshop's Amstrad Business Centre is a stockist of both the PC and *Wordstar 1512*, but hadn't run into the installation problem.

Naturally enough most dealers will have installed demonstration programs on the Amstrad PC, and therefore aren't likely to spot the problem until owners of other clones start complaining the product doesn't work.

MicroPro, which has assigned Amstrad sole marketing rights to the program, is unlikely to be best pleased about the situation, while other software houses with product being published by Amstrad will be similarly concerned.

While it may be in Amstrad's interest to limit the machines that software runs on it certainly is not in theirs.



AM's Vicom package

DR plans a range of new packages running under Gem

DIGITAL Research is planning to launch Gem-based communications, spreadsheet and database packages in the near future. The communications package, *GemComm*, is based on A M Technology's *Vicom* package, recently converted from the Macintosh to the PC, and is expected to cost around £150.

DR is, however, being cagey about the database and spreadsheet, admitting that it intends to launch products but refusing to comment on what or when.

The two packages are apparently being bought in rather than developed in-house, and are liable to be low cost, fitting in with the company's current policy of pricing Gem software at levels that will allow it to sell to Amstrad PC users.



Thingi

Thingi of beauty, say judges

OVERBASE'S ergonomic computer copy holder, Thingi, has been named Business Idea of the Year by a collection of companies that includes British Telecom, Marconi, Champion Spark Plugs, Cadbury Typhoo and the Midland Bank.

Thingi costs £8.04 and is available from Overbase, 176A Conway Street, Birkenhead (051-647 8981).

Commodore admits to new chips

COMMODORE has confirmed that it is working on enhanced versions of the Amiga's Agnus and Denise custom chips for future versions of the machine. The Amiga's Agnus chip currently controls 512K of the machine's display memory, which at the time of design seemed adequate for display purposes, but is now being upgraded to handle a full 2Mb.

Together with the upgraded Denise this will allow future versions of the Amiga to handle more detailed graphics much faster. More news of the new Amigas is expected at the November Comdex show in the US (see *Popular Computing Weekly*, September 18).



Eyles Icees face

Footnotes

As our picture shows, Mark Eyles is keeping some pretty strange company these days. He is not in fact discussing *Alien 2* with an Electric Dreams executive, but instead is demonstrating a pop-out extra to be included in the game's packaging. Don't open the box till you get it home.

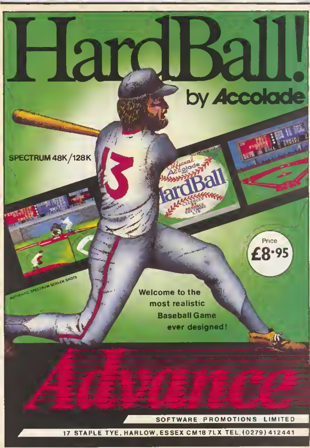
IBM bids to bring clones to heel

IBM began preparations for a counter attack against the clone manufacturers last week by linking up with chip manufacturer Intel in a technology exchange agreement.

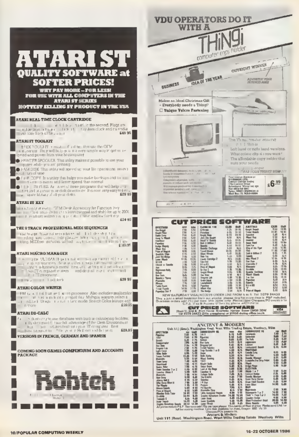
IBM's problem so far has been that both the operating system and processor for its PC series has been readily available, so companies like Amstrad have been able to produce IBM lookalikes and carve out a slice of IBM's market.

The new agreement, however, allows IBM to use tailor-made Intel chips, so if IBM continues to set the standard it will be illegal to copy it.

This will call into question the whole concept of IBM compatibility.



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Ancient & Modern

Akhter carries on streaming with BBC backup box

AKHTER is to launch the Archive drive, a combination 1Mb floppy drive and 10Mb tape streamer for the BBC. The tape streamer's software can produce a mirror image backup of a Winchester or can handle both individual files and directories.

The floppy drive is switchable between 40 and 80 track, and is housed alongside the streamer in a unit which fits over the BBC machine.

The complete unit costs £999.95.

Details from Akhter Group, Akhter House, Perry Road, Staple Tye, Harlow, Essex CM18 7PN (0279 443521).

Expansion for the Amstrads

THE Velleman interfacing system for the Amstrad CPC machines consists of a series of kits or ready built units based on a four slot mother board. The motherboard connects to the computer's disc drive port and provides an additional disc drive connector, allowing the system to be used at the same time as other peripherals.

Plug in interface cards which can be used with the Velleman include an eight channel analogue input multiplexer, A/D and D/A conversion, Centronics printer port, eight channel logic input, real-time clock and a general purpose output card. The kits start at £42.20.

Details from Electronics and Computer Workshop, 171 Broomfield Road, Chelmsford, Essex CM1 1RY (0245 262149).

Blow your own on BBC series

MULTIPROM is an Eprom programmer for the BBC series and is compatible with all models from BBC B up to Master. The UVP 1.1 software can run in sideways Ram if required, and enables an Eprom to be programmed from any file on a disc.

The Multiprom takes its power from the computer, and is fitted with dip switches which allow it to be configured to handle a number of different types of Eprom. The Multiprom costs £44.95 while the UVP 1.1 Rom is £5.

Details from Ground Control, 4 Alfreda Avenue, Hullbridge, Hockley, Essex SS5 6LT (0702 230324).

Budget WP pack for Amstrad PC

VUMAN Computer Systems' *Vuwriter* word processor has been adapted to run on the Amstrad PC and will be launched at £57.65 in November. The program supports a wide range of printers, and offers an extended character set which provides italics, European language characters and box drawing in addition to the standard typeface. Underlining, bold, superscript and subscript are also available.

Details from Vuman Computer Systems, Enterprise House, Manchester Science Park, Lloyd Street North, Manchester (061 226 8311).



Diary Dates

OCTOBER

25 October
20th ZX Microfair
Central Hall, Westminster, London SW1
Details Sinclair machines, hardware and software support
Price £1.50 adult, £1 children for advance sales, £2 and £1 on the door
Organiser Mike Johnston 01-601 9172

27 October
Computer Club 86
Blue Coat Comprehensive School, Birmingham Road, Walsall
Details Mainly Amstrad but includes a Sinclair corner
Price 25p
Organiser West Midlands Amstrad Users Group 021-420 1915

30–31 October
Hampshire Computer Fair
Guildhall, Southampton
Details Business computers
Price Free entry by business registration
Organiser Testwood Exhibitions 0703 31557

NOVEMBER

7–9 November
Electron and BBC Micro User Show
New Horticultural Hall, Greycoat Street, London SW1
Details Hardware, software and peripherals for the Electron, BBC micro and Master series
Prices £3 adults, £2 children, £1 discount for advance booking
Organiser Database Exhibitions 061-456 8835

8 November
UKEUG National Einstein Show
National Motor Cycle Museum, Birmingham
Details Einstein software and hardware
Price Free
Organiser UKEUG, 07982 2399

15 November
Wales and West Computer Show
Central Hotel, Cardiff
Details All types of home computer and support
Price £1 adult, 50p children
Organiser Preston Exhibitions 0656 880965

29 November
Wight Computing Fair
Ryde Town Hall, Ryde, IoW
Details Local show covering wide range of subjects
Price N/A
Organiser Wight Computing Users Group, 10 John Street, Ryde, Isle of Wight PO33 2PY

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

Letters

STs make light work

I find the comparisons being made in *Popular Computing Weekly* between Atari STs and IBM PCs and their Amstrad clones quite strange. Our expedition has both an Atari 1040 STF and an IBM PC XT – the latter enhanced with an 8087 maths co-processor and a vast software library. There is, in my view, little comparison at all between the two machines. We still like and use the IBM, but it does after all run yesterday's software (which generally costs a great deal more), and is far more suited to the corporate environment than small users such as ourselves.

In contrast, the Atari makes light work of whatever we throw at it, from inverting 100 × 100 matrices using APL 68000, to heavy database work, even fancy graphics. The Atari uses tomorrow's software at realistic prices, and having Gem in Rom means that we can deal with a consistent friendly user interface. I do not even feel compelled to use a hard disc, as the high capacity floppies and occasional use of Ram discs from 360K to 650K in size makes one a luxury.

The Amstrads may seem a wonderful bargain now, but I fear that in two or three years time, they will be as exciting and useful as the ZX80 is now, whereas our Atari will still be at the leading edge.

Howard Oakley
Database Manger
Joint Services Expedition to Brabant Island
Antarctica

Searching for Micro Prolog

In your July 3 issue, you published a series on alternative languages and I became particularly interested in Micro Prolog for the Spectrum.

However, I have been unable to find anyone to date who can supply me with a copy, or, come to that, who has even seen it!

I ordered a copy from Sinclair Research, quoted as the suppliers in your article, but they returned my cheque and said they were unable to help.

Can you please advise on anyone who can provide one?

L W Tyler
Cheltenham

The company which originally wrote Sinclair's Micro Prolog is LPA (Logic Programming Associates), of Studio 4, Royal Victoria Patriotic Building, Trinity Road, London SW18 3SX. It is possible that the rights of Sinclair's Micro Prolog have now reverted to LPA – try writing there for information.

Meanwhile, if anyone else knows of a Spectrum Micro Prolog package, we'd be happy to hear from them.

French without tears

I own a 48K Spectrum and have many games for it. As I am soon visiting France I wondered if it was possible to load French games on an English Spectrum, and if so, would any text be altered as I would buy an adventure. Could you name any decent French adventures?

Alex Skinner
Norwich

There should be no problems loading French software into your Spectrum. However, as you probably know, you will need to buy an adaptor for the Spectrum itself, in order to enable you to plug it in in France.

As for text changes, *Load ""* and so on, is identical. Otherwise, how good is your French? While some UK adventures (such as *The Hobbit*) have been exported to France with screen messages and responses in English, France has a thriving software base of its own, and no particular desire to publish home-grown software in a foreign language!

Decent French adventures? Try Loriciels or Infogrames, two of the leading French software companies. The latter certainly has a good catalogue of adventures, judging by the ones which are now becoming available over here.

Lost connections

I refer to the recent correspondence in your magazine about the Centronics GLP. I bought one about two months ago to use with my CPC464. I purchased from Boots its Connections tape and connecting lead but to date I have been unable to get the printer to work. Can anyone tell me how?

Gareth Doherty
15 Edanmount Road
Derry BT48 0DB
N Ireland

Wanted: B Baxter

Following the publication of Address Master program for Amstrad computers by B Baxter in the May/June editions of *Popular*, I forwarded a cheque for

Puzzle

Puzzle No 228

I have five cards on which I have written the following digits

If I lay them in a row as shown, the five digit number so formed, 11939, is a prime number. If I take the card from the left hand end of the row and move it to the right hand end, I still get a number that is also prime (19391). By repeating this procedure I can make a further three primes before arriving at my starting value again.

Can you say what other sequence of digits I could have written on the five cards that would also produce this effect?

Solution to Puzzle No 224

The only other possible combination of books is

$$6 \times 29 = 174 = 58 \times 3$$

We need to find a three digit product which results from multiplying a single digit number by a two digit number, in two different ways. Further the nine digits used must be the digits one to nine without repetition. Clearly this can only happen if the smaller of the single digit numbers is multiplyed by the larger of the two digit numbers, and vice-versa.

In the program lines 10 and 20 generate different combinations of one digit numbers, and lines 30 and 40 the two digit numbers. Line 50 tests to see if the product of the pairing of A with C is the same as the pairing of B with D. Any values that are not equal are rejected.

Duplication of digits are tested for in lines 60 to 110, by placing all relevant values into string format (Z$). Lines 80 to 110 check every digit against every other digit in the string. Any acceptable values are printed out.

Winner of Puzzle No 224

The winner this week is John McCarthy of Mansfield, Notts, who will be receiving £10.

Rules

The closing date for Puzzle 229 is November 3. Answers on a postcard please.

£2 50 to the author at PO Box 17, Burnham-on-Sea, Somerset TA8 1DT with a request for a copy of the listing

Despite repeated follow-up letters, I still have not received the tape

My cheque drawn on June 10 was cleared through my bank account on June 20, and this is clear evidence that my original letter was received by B Baxter

As only a PO Box number was given I am unable to pursue this on a direct basis with B Baxter

W L Barker
Gravesend
Kent

B Baxter, please come forward and sort this matter out!

It s not much fun backing up 80 megabytes of data but it's more interesting than Wogan

Jewels in the crown

To those who already have the original versions of Level 9 s *Middle Earth Trilogy* and who question the point of buying Rainbird s *Jewels of Darkness*, the answer is Yes

The new versions are so much more playable with the complex parser with the complex parser and other recent Level 9 advances Those whose machines allow the Ram disc features will find the gameplay raised to a new dimension

Colossal, Adventure Quest and *Dungeon Adventure* have always been wonderful games With the presentation brought right up to date there is nothing outside random accessed disc-based games to touch them for depth and atmosphere (and some would argue !)

At £19 95 is there better value for the host of new PC owners?

Hugh T Walker
Guildford

Matters arising

I have some queries arising from articles in *Popular* September 11 I have a Pioneer PX-7, graphics tablet and an Amstrad DMP 2000

Expanding the Amstrad DMP 2000 s buffer to 8K The chip required is a 6164 from RS Who is RS?

Lastly, Big Text by Steve Dunn Is it possible to get hold of the full programme, or more information, so that a programming illiterate as I am, can make the thing work?

Bernard Leighton
Birmingham

The chip required for the buffer is actually the 6264 RS stands for Radio Spares, and can be contacted at Lammas Road, Weldon Industrial Estate, Corby, Northants NN17 9RS (0536 201201).

As for BigText, it will run perfectly so long as the program is typed in correctly However, it will only do this on a Commodore 128 Could this be your problem?

Eat your heart out, Atari

Early this year I upgraded from a Commodore 64 to an Atari ST a micro often referred to as a supreme games machine with arcade quality graphics and sound

Well it didn t take me very long to find out it had neither of these qualities When it comes to graphics, the ST can only handle four colours on its hi-res (640 × 200) screen and that is so restrictive that most games use the low-res (320 × 200) 16 colour mode, which is no great improvement on cheap existing eight bit machines

Although it is possible to connect Midi equipment, this is a rather useless feature when it comes to playing games the built-in AY3-8910 sound chip (also used in the 128K Spectrum and Amstrad CPCs) is a downright insult to the whole ST concept It sounds awful and doesn't even come close to the Commodore 64 sound output

Needless to say I have sold my ST and recently bought a Sony MSX 2 computer – several MSX 2 micros are already on sale on the continent – and I just couldn t resist telling you about this superb machine

Just picture this built-in 3½ inch disc drive, 256K free Ram, an additional 128K video memory a 512 × 512 hi-res screen that allows the use of 256 on-screen colours and on top of all that a sound chip that will blow your mind

Eat your heart out, Atari

Peter Nijs
Belgium

Before we all completely desert the Atari STs in favour of MSX 2, it is worth pointing out that Atari's low-res 16 colours are selected from 512 and are true multicolour, ie, all 16 colours can be in one square. Comparative lack of colour in higher resolutions can be circumvented, cf *The Pawn*

Anyone who's heard the music on *StarGlider* will have judged for themselves how 'awful' the ST's sound is.

And in conclusion, the ST may be a 'supreme games machine', but that s in addition to its business and utility capabilities

CDS special offer in chess tournament

Popular s Readers vs *Colossus* tournament is beginning to sort out the knights from the pawns as you can see from the latest moves printed below

In Game one, the Readers team is playing Black, and overwhelmingly voted to move another pawn from d7–d5 (see below) *Colossus* has replied with P e4xd5

In Game two you re playing White and elected to even matters up by taking *Colossus* s pawn at d4 (see below) *Colossus* s next move is P e7–e5

So it s all up to you again Send your suggestion for the *Popular* Readers next move in each game to *Popular* Chess Unit 2, (yes they ve moved down the road!) South Block The Maltings Sawbridgeworth Herts CM21 9PG, to arrive by October 22

The most popular suggestion will be entered into the game, and *Colossus* will come up with its reply

Special offer

While the reader who makes the most number of accepted moves at the end of the games will win a reproduction Arran chess set CDS publisher of *Colossus Chess* has offered runners-up prizes of a copy of *Colossus Chess* itself

These will go to the five people who make the most suggestions, ie, the most consistent entrants (well, it ll make up for some of that postage, won t it?) The rider to this is that you can only make one suggestion per game at each move

Colossus Chess is available for the Spectrum, Commodore Amstrad CPCs and PCWs, BBC Electron, and Apple II

The games so far

Game One

1	Pe2–e4	Pe7–e5
2	Ng1–e3	Nb8–c6
3	Bf1–c4	Ng8–f6
4	Nf3–g5	Pd7–d5
5	Pe4xd5	?

Game Two

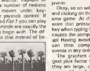
1	Pe2–e4	Pc7–c5
2	Ng1–f3	Nb8–c6
3	Pd2–d4	Pc5xd4
4	Kf3xd4	Pe7–e5
5	?	

In our next chess report in two weeks time, we ll mention some of the names who are currently in the running for the prizes

Fist II arrives

Sequels are usually a disappointment, and to my great regret *Fist 2* does nothing to break the mould An incredibly delayed follow-up to *Way of the Exploding Fist*, its 'adventurified' scenario adds little to the concept of the original

As before you control a fearless warrior, capable of making a number of realistic combat moves under keyboard or joystick control If you played *Fist 1* you can play *Fist 2* controls are exactly the same to begin with The difference is that instead of be-



ing limited to a static background with progressively more adept but otherwise identical opponents, in *Fist 2* you can move through over 100 different screens, fighting many different types of warrior, plus snakes, bats and other menaces.

Sounds great, unfortunately the animation is slow, the backgrounds drab, and the atmospheric music does little to alleviate the boredom If you lose a life you go right back to the start of the game (intensely annoying) and your main quest – to find magic scrolls in order defeat the evil warlord – is both unoriginal and unimaginative

At one stage your warrior must find a temple in which to meditate and regain energy Lying curled up on the floor in a foetal position, he seems to express my feelings about this game Bring back *Fist 1*

Popular Appeal ♦ ♦

Chris Jenkins

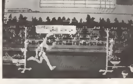
Program *Fist 2* **Micro** CSM 64 **Price** £9 95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston upon Thames, Surrey KT1 4D6

Quality graphics in Arena

It may be old hat on some machines, but the ST software market isn't exactly overflowing with athletics simulations at the moment so it's nice to see *Arena* from Psygnosis, the people who brought you *Brattacas*

The game, then, comes in a decent sized box containing two discs and features six events Namely, the 100 metres, long jump, high jump, pole vault, shot putt and javelin

Okay, so on with the action and clicking on the menu for a new game At this point beware that pressing the *Shift* key when typing in your name causes the computer to hang up! Having avoided that you can then compete in the events in any order you wish



The graphics are the biggest plus factor for *Arena* as they are large, colourful and reasonably well detailed Unfortunately the very size of the graphics leads to the animation being fair in parts and pretty jurchy in others The shot putt in particular is something of a joke as the putter doesn't even rotate on the build-up to the throw

My other complaint about the game concerns the referee type figure which shuffles onscreen after each event and offers various pieces of usually sarcastic advice This is faintly amusing the first time round but soon, very soon it becomes as funny as having your toe nails pulled out as you wait and watch the same old witless comments come up

However, despite these shortcomings and the fact that the pole vault and high jump events take too long to complete, *Arena* has quality graphics and is very playable

Popular Appeal ♦ ♦ ♦

Duncan Evans

Program *Arena* **Micro** Atari ST **Price** £29 95 **Supplier** Psygnosis, 1st Floor Port of Liverpool Building, Pier Head, Liverpool L3 1BY

Infocom's whipping yarns

I never thought I'd see the day when my word processor would issue such sentiments – but the day has come

Here is an Infocom adventure which is less than totally brilliant Sorry, I know it's a shock but there you are Perhaps you'd like to go and lie down quietly for a while

Leather Goddesses of Phobos is not a bad adventure God forbid The possibility of Infocom releasing a bad adventure is beyond the comprehensive of mere mortals It's just er, well not quite up to the usual Infocom standard

The storyline is splendid – a sort of Flash Gordon scenario set in the 1930s with you, the hero, kidnapped by the soon-to-be infamous leather goddesses You quickly end up on Phobos, a tiny moon in orbit around Mars

Your main task is to thwart the leather goddesses in their plan to enslave all humans on Earth On the way, there's a lot of exploring to do much puzzle-solving, and a deal of humour

Here we encounter problem number one Much of the humour struck me as unfunny

Leather Goddesses is being promoted as a kind of adult, naughty adventure What it is, is Carry On Spaceman with too much of the humour depending on parts of the female anatomy and bodily functions that most of us (I hope) ceased to find funny a long time ago

Not all of it, thankfully, depends on this obsession with tits and toilet smells Some of it is funny in an offbeat way For example, on the Martian surface you'll need to explore a system of canals and docks Here you'll find such delights as the Wattz Up Dock and the Donald Dock, among others

"you'll find such delights as the Wattz Up Dock, and Donald Dock"

Author Steve Meretzky was the co-author of the unspeakably brilliant *Hitchhiker's Guide to the Galaxy* and you can detect the influence here Not enough of it, unfortunately

Leather Goddesses is still head and shoulders above most adventures – but I trust this is just a temporary setback and doesn't mark the decline of this truly great software company

Popular Appeal ♦ ♦ ♦

Peter Worlock

Program *Leather Goddesses of Phobos* **Micro** Commodore 64/128 **Price** £24 95 (disc only) **Supplier** Activision, 23 Pond Street, London W3



An infinite variety

Tony Kendle picks a selection from the games pokes received recently

Before we get on with dealing with the long awaited and ever growing *Knight Tyme* file here are a collection of pokes for the BBC and Spectrum

Paul Miller of Waddon has come up with a cheat routine for 255 lives in the Spectrum version of *Stanon*, which he points out is an improvement on the pokes we printed a few months ago for reducing the rate of life loss

Starion routine

```
  0 REM STARION (SP spectrum
    by PAUL MILLER of Waddon
 10 REM to load
 20 DATA 221,33,0,100,17,200,0
 25 DATA 62,255,55,205,86,5,201
 30 FOR f=65522 TO 65535
 40 READ a: POKE f,a: NEXT f
 50 RANDOMIZE USR 65522
 60 POKE 25647,255: REM Lives
 70 REM to save
 80 POKE 65533,194
 85 POKE 65534,4
 90 PRINT #0,
  "start tape and press any key"
 95 PAUSE 0
100 RANDOMIZE USR 65522
110 PRINT #0,
"program saved reload starion"
120 LOAD ""
```

Once the game has loaded, save your position by pressing *Break* and 2. Reset the machine and enter the following program, run it and then load your saved game. This will be changed to give you the extra lives and should then be re-saved. You can later reload this into *Stanon* for the extra lives

Paul has also sent a poke for *Hellfire* – *Poke 29137 n* where *n* is the desired number of lives

Mark Gidley wrote a few weeks ago with some pokes for the BBC and has sent two more (see right) complete with loaders this time so all you have to do is enter them, save them, run them and play the game tape from the beginning

Dynamite Dan 2 – infinite energy

```
 1 REM [illegible] DAN 2 [illegible]
 2 REM [illegible] MITCHELL
 3 REM [illegible]
10 DATA [illegible] 155 1[illegible]
12 DATA [illegible] 6 55
14 DATA 20[illegible] 6 48 241
16 DATA 49 [illegible] 33 31
18 DATA 91 [illegible] 156
20 DATA [illegible] 6 195
22 DATA 64 156 62 24 5[illegible]
24 DATA 75 112 195 144 10[illegible]
26 LET [illegible]=0
30 FOR [illegible]=23296 TO 2335[illegible]
32 READ [illegible]
34 LET [illegible]
36 POKE [illegible]
38 NEXT [illegible]
40 IF [illegible] THEN [illegible]
42 BORDER 0: PAPER 0
44 INK [illegible] PRINT [illegible]
46 PRINT "START DD2 TAPE"
48 RANDOMIZE USR 23296
```

BBC pokes: Airwolf – infinite shields

```
10REM Airwolf - infinite
shields
20*T.
30FORI%=&1800TO&189P STEP4:
READ A%:!I%=A% NEXT
40CALL&1800
50:
60DATA &B9C800A0,&E3201848
70DATA &B03FC0FF,&621BA0F5
80DATA &FFF72092,&4E0D10A9
90DATA &8D21A918,&604C1BAD
100DATA &08A9A919,&63A979FE
110DATA &A979FF00,&7A000080
120DATA &01BD64A9,&8D0DA97A
130DATA &4CA97A02,&A97A0388
140DATA &7A048D00,&058D09A9
150DATA &79004C7A,&72694186
160DATA &66ACAF77,&666E6983
170DATA &74696C67,&68732065
180DATA &646C6567,&20202073
190DATA &20202020,&20202020
200DATA &20202020,&08202020
210DATA &73657250,&6C702073
220DATA &6F207961,&61742066
230DATA &000D6570,&00000000
240DATA &2E4C0000,&4C4F5722
250DATA &0B223246
```

Bug Eyes – Infinite lives

Mark is still looking for pen pals, so write to him at 296 Newton Road, Northamptonshire NN10 0SY

Stuart Mitchell of Knaresborough has sent an "infinite energy poke for *Dynamite Dan 2* (Spectrum) It is probably the best platform game ever and the music is worth buying the game for!

"The listing gives protection against all objects that sap energy except Dr Blitzen and water. Simply type it in and run it and load your game – the first block won't load, but this is intentional."

Thanks for these, all of you, now has anyone got tips for my current favourite game, *Frost Byte* from Mikro-Gen?

Charts

Top Twenty

1	(1)	Paperboy	**Elite**
2	(–)	Lightforce	**Faster Than Light**
3	(2)	Druid	**Firebird**
4	(3)	Thrust	**Firebird**
5	(6)	Speed King	**Mastertronic**
6	(9)	Ninja Master	**Firebird**
7	(12)	Ninja	**Mastertronic**
8	(5)	Trivial Pursuit	**Domark**
9	(7)	Dragon's Lair	**Software Projects**
10	(–)	Pub Games	**Alligata**
11	(–)	Streethawk	**Ocean**
12	(–)	Video Poker	**Mastertronic**
13	(4)	Go for Gold	**Americana**
14	(13)	ACE	**Cascade**
15	(–)	Strike Force Cobra	**Piranha**
16	(13)	Dan Dare	**Virgin**
17	(14)	Alleykat	**Hewson**
18	(11)	Kane	**Mastertronic**
19	(19)	Warhawk	**Firebird**
20	(–)	International Karate	**System 3/Endurance**

All figures compiled by Gallup/Microscope



Take heart

It's not often that we bother to review versions of games that make it onto other machines – the reason is simple

If a conversion is good, then the game will be exactly like the old version, so there is little point in going over old ground If it is bad, well it's so obvious that it doesn't need the likes of us to point it out But the Amstrad version of *Heartland* (previously on Spectrum) is something exceptional

On the Spectrum, you might remember, it was very well received as an atmospheric well designed arcade adventure However, on Amstrad, although the total number of locations is smaller (and the map slightly different) each location and character has been totally redrawn in 16 glorious colours with some very smooth scrolling and animation thrown in

The result is simply the best looking arcade adventure yet on the PC machines – and pretty good sound to boot The game plot has your good self striding through *Heartland* in search of the 12 pages that make up the final chapter of a book – six light pages that must be collected and six dark pages that must be destroyed There are two pages on each of the first four levels The Garden, Moonbase, The Caves and The Castle, with four residing in The Village To complete a level, you must collect both pages then return to your bed – for the whole thing is a dream or is it?

On completion, another section of graphics code is loaded in – around 128K over all levels – but it shows

Each has distinctive scenery and monsters that has set a new standard for Amstrad games Not that *Heartland* is just about graphics

The gamesplay will stretch your mapping skills and the time limit will ensure you don't hang about

It does lack pause and save facilities – surely things no full price game should be without – but believe me, the charm and instant visual appeal of *Heartland* should have you hooked

Popular Appeal ◆◆◆◆

John Cook

Program *Heartland* **Micro** Amstrad CPC **Price** £9.95 (tape) £14.95 (disc) **Supplier** Odin Computer Graphics, First Floor, 764–67 New Oxford Street, London WC1A 1EU

Dandy – running the gauntlet

So here it is – the best of the full price hack and slay Gauntlet-style games to hit the market, it being preceded by *Storm* (Mastertronic) and *Druid* (Firebird) with the US Gold offering coming later in the year

The similarities between all four games makes you wonder exactly what a company is buying when it licenses a coin op – really the bottom line is that it's just the name – no matter how much chest beating goes on And although the 'big name equals money in the bank', it's no sure indicator of a good game

Dandy of course isn't a big name No one had heard of the thing outside of Atari until a nifty bit of research by someone showed that this college programming thesis was in fact the basis of the hit arcade stand-alone *Gauntlet* Enter Electric Dreams, and now via Ram Jam we have the home computer version . and it's not half bad

Looking down on the action from above, one or two players can scythe through the masses of nasties gobble food for extra energy find spells and very importantly keys, that will get you past otherwise impassable barriers Hint number one – don't shoot keys

The game does not feature full scrolling it flips from one full screen to another when one / both players reach the screen boundary, with 12 screens per dungeon level

But anyway you look at it, *Dandy* is an excellent little game – superior to Spectrum *Druid* in the graphics and genocide dept, although it contains less in the way of puzzles and strategy

The two player option probably gives it the edge – so if you are in the market for a fantasy coin-op clone right now – queue here

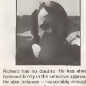
Popular Appeal ◆◆◆◆

John Cook

Program *Dandy* **Micro** Spectrum **Price** £7.99 **Supplier** Electric Dreams, 31 Carlton Crescent, Southampton SO1 3EN

That all-round nice guy, Richard Lang

Martin Bryant (pictured right) profiles Richard Lang, author of Cyrus and Psion Chess, and creator of the Mephisto Amsterdam chess machine



This month's column features a profile of the computer chess programmer, ex-London marathoner, and all-round nice guy, Richard Lang

Richard is responsible for the Psion range of 16-bit chess programs, and for the Mephisto Amsterdam dedicated chess machine During the past five years his success in many European and World championships has proved him to be probably the top computer chess programmer in Britain, and certainly one of the best in the world

Richard started writing his first chess program in early 1981 on a home-built Nascom-2 computer with a 4MHz Z80 processor

In September 1981 his *Cyrus* program won the European Microcomputer Chess Championships in London, winning all its five games This gave Richard the impetus to leave his job as a research scientist and he started work with David Levy's chess programming company Intelligent Software Over the next few years he programmed *Cyrus* to run on several home computers and dedicated chess machines

In 1984 he went freelance in order to be able to write a new program designed for 16 bit machines The resulting program, *Psion Chess*, was a joint winner in the 1984 World Microcomputer Chess Championships held in Glasgow as part of the Scottish Chess Federation's Centennial Year The program was published by Psion for the Sinclair QL As well as having outstanding chess play it was the first to give the option of a stunning 3D-graphics boards display

During 1985 Richard improved the program and translated it into 8086 Assembly Language Versions of *Psion Chess* were then published for the Apple Macintosh and the IBM PC and its clones The graphics for all the programs were designed and programmed by Psion leaving Richard free to concentrate on the chess playing algorithms to greater effect

Also in 1985 – a busy year – he was approached by Hegener and Glaser of Germany (manufacturers of the Mephisto dedicated chess computers) who wanted a new program for their top machine Richard worked with German chess expert Ossi Weiner and a team of hardware engineers to produce the Mephisto Amsterdam

This program slaughtered the opposition in the 1985 World Microcomputer Chess Championships held appropriately enough in Amsterdam The team of three Mephisto Amsterdam machines scored 22 out of a possible 24 points, with 21 wins two draws and only one lost game They walked away with first, second and third places and of course, the team prize

The Mephisto Amsterdam is now regarded as the Rolls-Royce of dedicated chess computers Its rating has been independently assesed by several sources as between 2000 and 2250 ELO With 64K Rom 16K Ram it uses a 12MHz 68000 processor, and if you've got about £900 to spare, then pop along to Harrods and buy one (yes, I know it's a lot of money, but then Rolls-Royces don't come cheap)

Since the 1985 tournament, Richard has continued to improve his program and has helped to produce a version for the Atari ST computer For development Richard uses a TDI Pinnacle computer which has a 12MHz 68000 a half Megabyte Ram and a 10Mb hard disc

There has always been disagreement between chess programmers about whether "brute-force-full-width" or "selective search" is the best approach Richard has no doubts He has always believed firmly in the selective approach He also believes – reasonably enough – that it is important for chess programs to contain a large amount of chess knowledge

And what of the future for programs such as *Psion Chess* and dedicated chess machines?

Richard feels that chess programs will continue to improve as hardware gets faster and software gets better Messrs Karpov and Kasparov can relax on their laurels for a little while though According to Richard they will be under no threat from a computer program this century Sighs of relief from Moscow

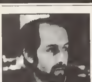
One of the biggest recent improvements in chess programs has been in their endgame play As an illustration, at a chess tournament in Helsinki the FIDE Master Harri Hurme made a speech about chess computers and stated that the machines were still "stupid", above all in endgame strategy However Hurme then played a demonstration match against the Mephisto Amsterdam and, unfortunately for him, lost after getting into a complicated Bishop-Knight endgame!

The final moves of the game are shown below (Mephisto playing white)

76	Ne6–c5	Kf5xg5
79	Kd6–c7	Kg5–f4
80	Nc5xb7	g6–g5
81	Nb7–d8	g5–g4
82	Nd8–c6	Bg2xc6
83	Kc7xc6	g4–g3
84	b6–b7	g3–g2
85	b7–b8/Q+	Kf4–f3
86	Qb8–b6	Kg3–f3
87	Qb6–g1	Resigns

And, as a final thought, on last year's BBC2 chess series British Grand Master Raymond Keene stated that in his opinion he could take on a hundred chess computers simultaneously and beat them all

However I wonder if he realised that during one of his simultaneous displays last year he played Richard Lang, and he lost! And Richard freely admits that he can't play nearly as well as his program!



Spot the pigeon

Tony Bridge dives headlong into Monsters of Murdac, the latest adventure from Global Software. He discovers elves, trolls, underground caverns . . . and a pigeon

From Global Software comes *Monsters of Murdac* for the Amstrad CPC and PCW machines. It sounds like one of those awful backward constructions like Murtceps from Mikro-Gen's ancient *Sorcerer's Castle*. In fact it just comes out as cadrum – deep huh?

This is a text adventure from John Thackeray and Jon Partington implemented by Locomotive Software, so you know that it is going to be a goody – and so it proves to be.

There are several unusual features in this game, the first of which must be the amount of disc access that goes on throughout the story, a universal feature of American adventures, but one that has been slow to catch on here. With the steady growth in the UK of disc drives as seen in the Amstrad range, maybe games like this will become more common in the future.

Then there is a dynamic hint feature, again for disc users (tape users will have to write off to Global for a help sheet, I'm afraid) within the game, just type *Help* – each disc contains a database of hints which can be examined from subtle nudges through to complete solutions for particular problems. Thus the player can elect how much of the final solution to see, which seems preferable to reading the answer from a sheet, with the attendant temptation to read on and see more of the answer.

Monsters is the first in what looks to be a very promising series to come from Global which includes *Philosopher's Quest* and *Countdown to Doom* – as you'll know these excellent games are very well-respected adventures from the early days of the Beeb, and it will be good to see them on the Amstrad.

Monsters of Murdac is an adventure with its shirt-sleeves rolled up! It's a traditional story of elves, trolls, gold, underground caverns and so on, but conducted with a certain amount of humour. As Global itself says *Murdac* contains death-defying trolls, bloodthirsty, bricklayers and even not-so-friendly fairy godmothers. But enough of the story, which is really just a coat-hanger for the problems.

One of my favourite devices, the slow start, is employed to lull the player into a false sense of security. The start of this traditional plot is set in a tranquil garden – there is a round dozen of easily explored locations in this opening scene, and in true adventure-story fashion, there are several objects to be discovered here, some of which have obvious uses, while others are more mysterious.

The ubiquitous sword is there for the taking, although a little ingenuity and a deal of lateral thinking must be used to make it appear (remember your Arthurian legends). As a free hint immediately go south, north, S and N again from the start (this particular routine won't work if you hesitate for a second), then pick up what you find – well, blow me down!

Something else that will make the adventurer's heart quicken is the hut, looking so inviting to anyone who has played the classic games, and it is the focal point of this part of the story – there is a silly pigeon wandering around in the hut, who doesn't seem to serve any purpose.

But I have hardly scratched the surface of this game, and I hesitate to say for certain that the pigeon is useless (he *can* be befriended, however, and it seems prudent to do so)! Every time I attempt the game I find something new, and I have a terrible feeling that I still haven't explored every part of that oh-so-innocent garden.

And is there a second chance? Can you get back from some later stage of the adventure to the start in order to pick up those things which you might eventually need?

Once beneath ground, the adventure opens up, with a cellar beneath the hut containing exits at all points of the compass, all of which lead to many more locations – again, plenty of objects to be examined and lots of neat little problems.

This part of the story is very more-ish, you'll find yourself just whizzing round and round the locations until finally coming to a halt – now a bit of deep thought must be employed!

Although the descriptions are just three or four lines long and not in themselves particularly atmospheric, nevertheless you'll find yourself drawn in to a believable fantasy. This is helped by the way in which the program recognises that you have previously passed through a location, with *You are in the garden where you picked up the rod* being a typical response.

No bugs yet

In fact, the whole story is very well presented, which is not surprising considering its pedigree via Locomotive – needless to say, I haven't yet found a bug. Meanwhile, I have to admire the screen layout and parser, which accepts multiple commands. *Examine* is not, however, recognised, though this is so apparently, because the game is conceived in such a way that the puzzles are not involved in merely happening to discover things about the objects.

It is only by manipulating them where

possible, or conjoining them that relevant features are revealed Does this mean that the adventurer must wander around totally blind until some flash of inspiration lifts the veil?

The game play is in general conducted very professionally we've discussed the *Help* feature, and this is well presented, with the current display scrolling smoothly away off the top of the screen to make way for the hint text

Automatically worn

Input can be of the usual verb-noun construction, or by using multiple commands, and it is good to be able to *Drop all except the red cherry* (although it is perfectly possible to *Swipe gin bottle then go north very carefully and then kill the ogre with the bottle*, I can't see anybody actually typing in such drivel)

With the exception, as we've seen of the *Examine* command most of the adventure conventions are adhered to However, *Wear* is similarly not recognised – if an object required wearing to fulfil its function, then it is automatically worn.

I'm glad to say that *Save* and *Restore* are very easily and quickly managed, at least for disc owners, although *Monsters of Murdac* suffers from the same drawback as Infocom and others in not offering a *Cat* facility to players

You will need to make sure that you know precisely what is on your disc!

I also liked the way in which the necessary lamp, found at some early stage in the story, switched itself on and off as necessary, thus relieving the player of word-matching as in most other adventures After all, surely even the thickest dunderhead could switch on a lantern and it is one less worry

I *didn't* though, like the way in which an ignominious death can all too easily be met For example stumbling into the keep will bring you face-to-face with a venerable old king surrounded by his guards

He will allow you to retreat without harm, but only if you drop all your possessions (he's very kind, though, in allowing you to retain your lamp, without which you would fall and break your neck in the dark An unpleasant death)

Try moving away with inventory intact and you will die an ignominious death at the hands of his guards There are several other ways in which an abrupt conclusion may be met so regular use of that *Save* facility is recommended

Murdac as I've said is an adventure with its shirt-sleeves rolled back, a no-nonsense story – but the shirt is made of the purest silk and fits the adventurer perfectly

The tape for your CPC machine will set you back a very reasonable £7 95, with the disc available at £14 95 the adventure can also be run on the PCW for £19 95 and conversions are doubtless on the way Global Software is at PO Box 67 London SW11 1BS

Adventure Helpline

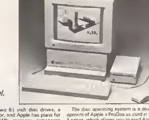
Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand

Fill in the coupon, explaining your problem send it to us, and a fellow adventurer may be able to help

Remember – the system only works if those adventurers who have solved the puzzles get in touch Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (Micro) ....
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Name ....
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Apple II series – the story continues



Peter Worlock previews Apple's IIGS machine – to be priced at Atari ST level, but with some Amiga-like capabilities

The story of the Apple II is a long and fascinating one – apart from being, arguably the first personal computer, it is certainly the longest lived

Difficult to believe but we have it on the authority of the Wall Street Journal that this venerable machine is still the world's second-best selling machine, after the IBM PC

So when Apple launches the latest generation of IIs, known as the IIGS it's not something to be taken lightly.

The original II line used the 6502 processor, the same as the Commodore 64, early Ataris, and the Acorn BBC Micro, among others

The GS breaks new ground by using the 65C816 processor, the first commercial microcomputer to do so What makes the new chip interesting is that it is completely compatible with the 6502, while at the same time being a full 16-bit processor capable of addressing 16 megabytes of memory

This means that the new machine will run virtually all of the existing Apple II software but holds out the promise of much more powerful programs to run in its own right

The machine itself as we've come to expect from Apple, looks very attractive It comes as a three box unit monitor, processing unit, and detachable keyboard, with the disc drive making a fourth The white colour scheme and styling are familiar from the Apple IIc

What you get in the basic system is a monochrome monitor, 256K Ram, a single $3\frac{1}{2}$ inch 800K disc drive and mouse As extras you can add another $3\frac{1}{2}$ inch disc drive, two $5\frac{1}{4}$ inch disc drives, a colour monitor, and Apple has plans for 1Mb and 4Mb memory expansion boards

But what makes the machine so striking are the items which give it the name GS the graphics and sound

The GS supports the old Apple II graphics modes, but adds new ones called "super hi-res" The first is 320 × 200 with 16 colours, and the second is 640 × 200 with four colours Each colour palette can be selected from a total of 4096 colours

If this sounds impressive enough you ain't heard nothing yet The clincher is that the GS can support 16 pallettes on each screen, and the palette and resolution mode can be changed on each screen line. This means that the GS can give the Atari ST and the Commodore Amiga a run for their money in the graphics department

In terms of sound, it leaves them standing

The GS's sound chip is the Ensoniq Digital Oscillator Chip which supports 32 oscillators used in pairs One oscillator is used as a timing signal, which leaves 15 oscillator pairs for sound output

This means 15 independent "voices", compared to the four used in, for example the Commodore 64 or the Atari ST

Moreover, the DOC operates on its own – it doesn't need to be programmed on interrupts – and it has its own memory to store waveforms This makes the GS a clear leader in microcomputer sound – notably better than even the awesome Commodore Amiga

Other notable aspects of the GS include a Macintosh like operating system that employs the mouse with a "software desktop" incorporating icons, drop-down menus and Desktop accessories such as calculators and the like

Apple IIGS rear ports

The disc operating system is a development of Apple's ProDos as used in the II series which allows you to read Apple II discs, and holds out the imminent prospect of file-compatibility with the Mac

Conclusions

The GS is an intriguing machine, to say the least The graphics are great, the sound is truly "state of the art", and the pricing pitches it directly against the Amiga and the top end of the ST range

It has an instant, large software library in the Apple II range but obviously these packages will make no use of the advanced features of the machine

Dedicated software will take a while to arrive, and how much of it there will be is open to question since software developers will be reluctant to devote their energies to such a small user base, compared to the very large existing market for old-style Apple II products

In short, it's difficult to judge the prospects for the machine in the UK In the US, I've no doubt it will do extremely well, but the British division of Apple is almost somnolent compared to its US counterpart (For example one wonders why Apple didn't stop Acorn dead in its tracks when the educational market was up for grabs – it was well placed to do so)

The machine will be available from January 1987 at £995 inc Vat for the basic system

Finally, the company's insistence on high prices – while making economic good sense – means that the GS will never be a mass-market machine You could do worse than buy one – but be prepared for a little loneliness The odds against you stumbling across a fellow GS owner in the pub are enormous

Product *Apple IIGS* **Price** £995 **Supplier** Apple Computer, Eastman Way, Hemel Hempstead, Herts HP2 7HQ.



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K-Word – up to the challenge?

The Atari ST is in many ways the ideal word processing machine, offering fast disc access, large file memory, mouse control and the convenience of windows and pull-down menus. It needs a good word processing package to take advantage of all these facilities, and Kuma's *K-Word* seems to be up to the challenge.

K-Word is considerably more advanced than *First Word*, the wp package included with the ST. However, since it takes full advantage of the Gem environment, it shouldn't represent much of a shock for anyone who wishes to upgrade.

Compatible with other Kuma packages such as the spreadsheet, *K-Spread*, *K-Word* can also send and receive Ascii files, so you can transfer existing *First Word* files if you so desire.

All the normal text editing features are included: you can use either the mouse, or combinations of arrow keys, to move to the end of a line, to the beginning of a line, to the next page, back one character, forward one character, and so on.

It's also possible to have four windows, with different texts, open at the same time, although only one will be active. There's a 'clipboard' facility which enables you to transfer text from one window to another. The text formatting window allows you to opt for left-, right-justified or centred text, while italic, bold and underlined text can also be toggled on and off.

Margins, headers, footers, place string, definable function keys, mailmerge, auto key repeat and flexible printer tabs, indents, search and re-installation routines are all included.

Mercifully, there's also a word count, which is one of the notable omissions from *First Word*.

With a good, clear manual and a reasonable price, *K-Word* looks like an excellent choice for the demanding word processor user.

Chris Jenkins

Program *K Word* **Micro** Atari ST **Price** £49.95 **Supplier** Kuma, 12 Horseshoe Park, Pangbourne, Berks RG6 7JW

PC 'thought processor'

For everyone who is on the verge of buying a shiny new Amstrad PC and wondering what programs to run on it, take my advice – get *PC Outline* first!

No matter what your main line of business is and no matter what type of program you are likely to be running 90% of the time, word processor, database, spreadsheet, accounts, even games, *Outline* will greatly extend the power and usefulness of your system.

Outline is strictly speaking an example of that boon to the jargon manufacturers, a 'thought processor'. It is like a word processor which, although lacking advanced features such as spelling checks or headers and footers, has the added ability to structure your text into a hierarchy of ideas.

A document could contain several main headings, A, B, C, etc, each one of these headings can be subdivided into smaller sections, A.1, A.2, A.3, or even smaller A.3.1, A.3.2, and so on. In a report, for example, the main headings may contain general summaries, each smaller section giving more precise details on certain topics.

A thought processor allows you to create such documents and then manipulate the structure rapidly and easily – sections of detail can be moved and repositioned, promoted up a level or demoted.

> *"it really does help to structure your ideas"*

Levels of detail can be hidden so only the major headings show or revealed again at the press of a button.

Once you get used to it it really does help to structure your ideas in a more logical manner and could do as much to improve your output as word processing did for textual errors.

But the true beauty of *Outline* goes further than that – it's easily the best piece of programming I've ever seen on a PC.

For a start it is a memory resident pop up program. It can sit there, invisible, until a certain key combination is pressed and suddenly there it is, ready to make notes, act as a diary, whatever you want. When finished back you go to whatever program you were running before as if nothing had happened.

Outline documents can be converted to *Newword/Wordstar* or Ascii files with ease or they can be 'fed' to your current program (whatever it is) as if you had typed them at the keyboard, guaranteeing compatibility with, and complementing almost any word processor.

Outline commands are entered by pop up menus or by short cut commands when you are more proficient. Most fun of all is that the document can be displayed in a window which can be changed to any size and moved to anywhere on a screen so that you can view your other program underneath. No less than *nine* definable windows can be on screen at once, each containing a different *Outline* document and you, or your text, can jump between each one with a couple of keypresses (all done without the need for Gem).

There are so many remarkable details to *Outline* that I don't know where to stop. Everything happens instantaneously, windows appear and vanish, paragraphs re-format as you type, but so quickly you hardly notice, and so on. Try to see it. Even better, buy it.

Tony Kendle

Program *PC Outline* **Micro** IBM PC compatible **Price** £69 **Supplier** Newstar Software, 200 North Service Road, Brentwood, Essex

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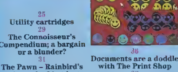
SPECIAL supplement

1986
Oct 16-22

COMMODORE 64/128

INSIDE





Back from the computer wasteland once again in profit and looking forward to slugging it out with Atari and Amstrad/Sinclair, Commodore looks confident for the first time since the departure of Jack Tramiel

The new-style 64C should be in the shops now, part of the Connoisseur's Compendium which is reviewed in this supplement We're also looking at the spectacular Artist 64 mouse driven graphics package and its rivals, the amazing Pawn adventure at last translated to the 64, the latest choice in disc drives, the impressive Print Shop text/graphics producer, and much more.

We've saved our games coverage until nearer Christmas meanwhile read about all the ways you can make your 64 work for you ◀

The case for cartridges

BASIL COLFAX LOOKS AT THE WIDE CHOICE OF PLUG-IN UTILITY PACKS TO ENHANCE YOUR 64

For all its facilities, the Commodore 64 suffers from lots of ommissions, there are no Basic graphics commands, limited printer control, complex disc commands, no built-in machine code monitor, and so on Although some of these drawbacks can be remedied by software, what's really needed is an extra add-on operating system, preferably in the form of an easy to-use cartridge

With dozens of these plug-in units available, ranging from fast disc systems to basic extensions, it's worthwhile comparing some to help you decide which is the one for you

▶POWER CARTRIDGE
KCS/MAGNAM PRODUCTS
$32.95

The Power Cartridge, supplied in an eye-straining tomato red is one of the latest cartridge products, and offers a wide range of facilities, though nothing unique There are five main areas of use The first is a Basic toolkit, offering automatic line numbering commands, colour setting for border background and text, block line delete, variable dump, text string find, function key commands Basic merge, and so on

Fast disc loading, claiming improvements of five to eight times, is another useful feature, you can also display a disc directory without disturbing the program in memory, change device numbers, and perform format/scratch/initialise functions without the tedious Commodore syntax

Powermon is a straightforward monitor which allows access to RAM normally hidden under the kernal ROM and includes a full set of commands to assemble, disassemble fill, hunt, jump, display registers and so on The printer command section allows you to make screen dumps, in large, small, normal or inverse print, and to use centronics printers connected to the user port.

The last feature is the reset page Pressing the Power Cartridge's reset button brings up a menu from which you can select CONTINUE, to return to the program, Basic to return to Basic with all variables retained Reset to clear the memory, Hardcopy to provide printouts and Monitor to access machine code The Power Cartridge is a good general purpose device for Basic programmers and hackers

▶TURBO 50
ROBTEK
$39.95

The first widely successful multi-purpose cartridge the Turbo range, including the top-of the-line Turbo 50, still stands up well to the opposition Supplied complete with a head cleaning tape, Turbo 50 is (so far as I have been able to make out!) software transparent, it should not interfere with any commercial program

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you choose to load It includes a rest reset button and using the SHOW command gives a full on screen list of all the Turbo commands

The Basic programming toolkit contains the usual auto-numbering, block delete, string find, and so on A useful extra is HELP, which displays any errors in Basic commands just executed, a feature of the Commodore Basic 7 0 found on the C128 OLD retrieves a NEWed program, PLIST shows a listing page by page, and there are also commands to set colours and so on

Function key presets for disc loading, listing and so on are provided, and Turbo 50 has comprehensive tape and disc speed enhancement routines, merge, and a good selection of disc commands

Programs on tape or disc can be backed up, but protected software is often found to be uncopyable There's a full spec monitor, and Centronics printer facilities, including a routine to replace CBM graphics commands with easy to understand abbreviations

Starting from £24 95, the Turbo range would appeal to the same sort of audience as the Power Cartridge – Basic programmers and hackers – and represente very good value for money

▶THE FINAL CARTRIDGE
H&P COMPUTERS
£45.00

The Final Cartridge has always claimed to be more than just an add-on, more a whole new operating system Certainly, it contains facilities which are difficult to find elsewhere, and is often updated using ideas, to put it politely, "inspired by" other products

Claiming to be compatible with 98% of commercial software, The Final Cartridge includes a reset button and an on/off switch Facilities fall into eight or nine categories, including disc turbo offering 6–8 times faster loading and saving, tape turbo, up to ten times faster; centronics printer software, screen dump facilities for hi-res and multicolour screens, 24K RAM extra made available for programming, a Basic toolkit with auto number, find, help, old preprogrammed function keys, typewriter commands to use your printer directly, a machine code monitor; and, in the latest versions, a sprite collision detection disable function to make gameplay easier There's also a version available with a freeze facility, which enables programs to be backed up to disc or tape

An excellent product for the more advanced computer user, and one which offers an update option as new improved versions appear

▶THE EXPERT CARTRIDGE
TRILOGIC
£31 95

Unique in that the software operating system is loaded from disc, The Expert Cartridge is correspondingly cheaper than many of its competitors, and offers easy upgrading as new facilities become available Instead of throwing away your cartridge and buying one with the latest ROM, you just send your operating system back to Trilogic with a small service charge, and they send you an updated disc

Although this system makes The Expert Cartridge a little slower to use than the competition once it's running it works very reliably

The cartridge includes a three-position switch, OFF/PRG/ON, and the ubiquitous reset button.

The main functions of The Expert Cartridge are for preparing fast loading backup programs, and providing monitor facilities The operating system disc contains a fast load boot file, which is copied onto your library disc. The main program is then loaded into the cartridge, then the computer is reset

Programs are frozen using the restore key, and can then be backed up to your library disc The restart address is displayed on the screen.

One advantage of The Expert Cartridge is that, unlike other products, it compacts the backed-up program when transferring it to disc, saving valuable space

Backups to tape can be performed without even having the cartridge in place (just using the master software), and the machine code monitor, which has a full range of assemble, disassemble, fill, jump, relocate and other commands, allows you to modify existing programs to your requirements (so long as you understand machine code!)

As its name suggests, a product for the more able computer user, and one which offers both value for money and longevity

▶FREEZE FRAME 2
EVESHAM MICROS
£39 95

A straightforward program backup utility cartridge, offering amazing ease of use and high efficiency, Freeze Frame has recently been updated

Operation is simplicity itself On powering up, Freeze Frame displays a screen of instructions Pressing the space bar clears the screen and resets the computer, at which stage you can load your program from tape or disc

Freeze Frame operates by the principle of taking a "snap shot" of whatever is in the computer's memory when the cartridge's reset button is pressed. Therefore, when you load the backup program it starts at the exact stage where it was saved

Backups can be made to tape, or to disc at either normal speed or fast-load simply by pressing the correct key after resetting. Freeze Frame is, admittedly, wasteful of disc space, it saves each program as five separate files, making it unlikely that you will get more than three backups onto each disc.

There are a number of alternative routines available to deal with certain troublesome programs, but basically Freeze Frame 2 is incredibly easy to use and very reliable. As a bonus, the backed up programs load three to four times faster than normal, displaying the distinctive Freeze Frame black and white flashing screen as they load

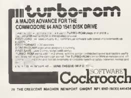
An excellent purchase for any computer user who wishes to produce security backups of any heavily used software package

▶ONE-STEP
FIRSTLINE SOFTWARE
£14.95

30 useful functions on one cheap cartridge can't be bad Produced by ShareData in the US, the One Step cartridge has a bit of everything, including a reset button which brings up a display of all the available commands Most of these involve two keystrokes – * followed by one other – which replace more cumbersome CBM Basic commands

Facilities include automatic line numbering, file copy, whole disc copy, delete block, show free memory, get directory, print screen (text only), send DOS command, set screen colours, load basic program, load sequential file, change drive device number, and so on. There's also a simple text editor which can function like a word penessor for short documents, setting margins, saving and loading files, and scrolling through a work area up to 481 lines lung

One Step has a lot to offer, not least economy, and may well provide all the facilities you need Consider it carefully before splashing out on something more laborate which may include facilities you will never use ◀



Commodore's mixed bag

IS THE COMMOOORE CONNOISSEUR'S COMPENDIUM A LUCKY BAG OR A PIG IN A POKE? ANDREW MAYFAIR STICKS HIS HAND IN

Since the dismal failure of the underpowered C16 and Plus/4, and the relative disappointment of the C128 (overpriced, and with no CP/M software emerging), Commodore has been wondering how to restore its shattered market image The Amiga, wonderful machine though it is, is obviously not going to become the sort of ground breaker the Apple Macintosh was

Is Commodore's salvation, then, going to be a return to the stalwart 64? It certainly looks that way, since the latest version, the 64C, is being heavily promoted with the Connoisseur's Compendium pack, the ideal Christmas purchase at £249

Just what do you get for your money? For a start, the basic 64C. This is internally identical to the 64, and will run all the same software and use the same peripherals The only differences are cosmetic, the 64C is housed in a low, wedge-shaped case which makes it look like the C128, with the extra control keys and numeric keypad removed. The four function keys are found, as with the original 64, to the right of the main keyboard. The keyboard action is slightly easier, but functionally the machine is identical to the old 64

Also included in the Connoisseur's Compendium is the standard Datasette cassette deck Though this is the second version of the datasette (how many of us remember the original, box shaped model?), it now looks outdated compared with the 64C, retaining the rounded corners and chunky keys

Innovative

More innovative is the mouse and graphics package included in the compendium

These items will be familiar to many of you as the Wigmore House MS 2000 mouse and Cheese graphics package (also sold as the NEOS mouse), normally around £60 The mouse is excellent, plugging into the joystick port, It includes a long cable, two positive action click switches, and a smooth rolling rubber-coated ball Resolution of up to one thousandth of an inch is possible using the advanced optical circuitry, and the mouse can also be used as a joystick if the left-hand button is held down when the computer is powered up

The Cheese graphics package is equally impressive It has three menus of icons to select drawing facilities such as line, freehand, fill, circle, square, mirror, block copy and pattern All sixteen CBM 64 colours can be used to create detailed pictures which can then be printed out on any Commodore printer The software is supplied on cassette (and pictures can only be saved to cassette), but a disc upgrade is available from the manufacturers The mouse and Cheese make an excellent addition to the 64, and the Wigmore House Artist 64 software reviewed elsewhere in this supplement makes the obvious upgrade Unfortunately, despite many promises, neither Commodore nor any other third party manufacturer has come up with any more mouse driven software. Pity

What else is included in the Connoisseur's Compendium? Candidly – not much. Rather than include a wide range of software products, Commodore has opted for a whole bundle of bored game – sorry, board game – conversions from Leisure Genius, and others These include versions of the world-famous Monopoly, Cluedo and Scrabble, and Audiogenic's Grand Master Chess and Renaissance (also known as Othello). Whatever the individual merits of these programs, together they represent very little extra incentive to buy the package A good sprinkling of arcade games plus some strategy titles and perhaps and an adventure would have done much more to indicate the versatility of what is, after all, still the world's best-selling home computer

Last on the software list is the Pitman Typing keyboard skills program, across which I shall draw a discreet veil Admirable though it is to give computer users some incentive to learn to type, what's the point in offering this package in a bundle which is totally unsuited to word processing due to the absence of a printer, disc drive or word processing software? A very odd idea.

Overall, then, the Connoisseur's Collection is hardly that The 64C, mouse and graphics software are excellent, the rest is padding So is the compendium the ideal starter's pack for the computer neophyte? I would still recommend the Commodore 64C, even over the Sinclar/Amstrad Plus 2, which although it is £100 cheaper than this package offers inferior graphics, inferior sound, no standard disc drive, and less sophisticated software. The Compendium, though, is another matter, why not weigh the cost of the mouse and Cheese, plus a 64C, and decide for yourself whether the Compendium's other delights are what you want your Christmas present money to be spent on ◀


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I normally hate adventures, for several very good reasons. For a start, the scenarios are cliched, the goblin's dungeon, the maze, the sinister castle. Secondly, the parser (text interpretation system) is limited, often to verb-noun entry, and often to responses like "I don't understand" or "You can't go that way" which make you tear your hair with frustration. Thirdly, the illustrations are usually four lines and a blob and lastly, they have no sense of humour. The net effect is not of locking minds with a devious intellect, but of trying to communicate with a Latvian idiot in order to solve meaningless puzzles.

Enter The Pawn. Originally intended for 68000 based machines, the QL, ST and Amiga, The Pawn is now available for the 64/128, and does for adventures what the



No yawns with the 64 Pawn

RICHARD BENSON ON THE GROUND-BREAKING RAINBIRD ADVENTURE PROGRAM, NOW CONVERTED FOR THE CBM 64/128

Huns did for the Roman Empire, it gives them a boot up the bum.

The Pawn, developed by Magnetic Scrolls and marketed by Rainbird, is a satirical adventure with all the complexity of the most fiendish titles from better known software houses like Infocom and Level Nine, but with the addition of an incredible parser, excellent illustrations and a wonderful sense of humour. The result is an adventure for non adventurers, and a classic for hardened orc bashers.

The Pawn comes on two discs, complete with a novella, A Tale of Kerovnia, which acts as a scene-setter for the game. Kerovnia is a land inhabited by characters you may recognise from other games – the brave adventurer, the beautiful princess, the wicked enchantress – but all with a subtle twist.

Kerovnia also suffers from a political crisis, as Gringo Baconburger, leader of the Opposition Party, tries to oust the ineffectual King Erik from power. Into this scenario you find yourself thrust, armed only with a pair of jeans and a shirt, with a mysterious silver wristband locked onto your arm. One of the aims of the game is to obtain help in removing the wristband, but along the way you will inevitably become involved in the plots and counter plots of the main characters.

Apart from the jokes, which vary from the subtle Irrelevant Maze and Unimplemented Rem Statement to the broad humour of Gringo Baconburger and the whining Princess, The Pawn features very complex object handling due to a sophisticated data look-up table, which can assign dozens of qualities to each object and character.

Unlike the ST/Amiga versions, the 64 version of The Pawn doesn't have pull-down windows for selecting various display options. Above the 40 column green text is displayed a brief description of your location – "On the path" for instance – together with your current score. Dotted throughout the adventure are illustrations which faithfully recapture the charm of the ST/Amiga pictures, though obviously limited by the hardware of the 64. Still, the only 16 colours and limited resolution artist Bob Stephenson has managed to produce the best pictures I've seen in an adventure game, and to make the effect more stunning the pictures scroll down over the text, and can be scrolled off again if you so wish, using the function keys.

Another excellent concept is the cameo, a miniature of the current scene illustration which appears at the top right hand side of the screen.

The most impressive aspect of The Pawn is undoubtedly the parser. Although the vocabulary is not unusually big (still bigger than practically any other adventure on the market, though), the way in which sentences can be interpreted is unique. For instance, up to the limit of 255 characters, sentences of any length can be entered, so you can string together dozens of movement instructions in one command. The parser can also tell from sentence position whether a word is being used as a verb, noun or adjective, for instance "plant the plant in the plant pot."

The parser copes easily with indefinite articles – 'take it', "talk to him" – and also recognizes which objects you are referring to without their full description being given – for instance "the key in my pocket" rather than "the wooden key".

Moreover, it's very easy to edit your text as you enter it, using the cursors and other command keys you can delete characters, words or lines, or recall a previous line.

The forthcoming CBM 128 version will have two modes, a 40-column version similar in appearance to the 64 game, but operating faster because more is held in memory, and a text-only 80-column version which will operate even faster with the Z80 chip and fast processor.

Unless your attitude to adventures is so po-faced that you dislike the humour of The Pawn, you are bound to be stunned by its wit, invention and technical achievements. At £19.95 it's not an impulse purchase, but is certainly an investment which will give you many hours of adventuring pleasure. ◄

The art of mouse

CHRIS JENKINS ARGUES THAT WIGMORE HOUSE'S ARTIST 64 OUTPERFORMS ANY OTHER COMMODORE GRAPHICS PACKAGE

Graphics packages for the 64 seem to fall into two categories; those with a few simple facilities which are relatively easy to use, and those with more complex controls which often end up baffling the user. Only with the emergence of WIMPS - window, icon, menu programs - has it really been possible to combine complexity with ease of use.

Another important factor is the emergence of the mouse. If you have ever tried using a joystick-driven art package, you will know that the eight directional nature of joystick control makes it practically impossible to draw smooth curves. Only the free-moving control offered by a mouse - basically a kind of tracker ball turned upside down and used on a table top - can give convincing freehand effects.

The three packages we'll be looking at - Wigmore House's **Artist 64**, Rainbird's **OCP Art Studio and GeoPaint** (part of the First Analytical GEOS package) - all offer some very sophisticated facilities, but manage to be quite different.

Sprites, colour cycling, sprite fills and colour priorities on Artist 64

Hi-res

Art Studio and GeoPaint have several factors in common. They both operate using a sophisticated system of pull-down menus and windows, and they both work in the 64's "high resolution" mode. This gives a horizontal resolution twice that of the "multicolour mode" used by Artist 64, but due to hardware limitations of the computer (no more than two colours in any 8x8 pixel block), hi-res mode can lead to terrible problems with colour priorities. The result can be that Sinclair Spectrum-type character square colour clashes ruin your otherwise wonderful picture.

Despite these problems, Art Studio excels in many ways. The top of the screen shows a selection of menus - print, file attributes, miscellaneous, undo, windows, fill, magnify, text and shapes, plus a display of the section of the full screen currently in use and the control device. This can be the keyboard, Koalapad, joystick or mouse. The control device moves an arrow around the screen, allowing you to pull down the required menu, make a selection from it, then return to painting. Purchasers can obtain a suitable mouse for around £30 from Rainbird.

All the standard drawing features - lines, boxes, circles, textures and patterns, freehand and so on - are included, but the Art Studio also offers a wide range of zoom options (from two to eight times) and printouts.

Your completed pictures can be loaded into other programs with a few simple lines of Basic, making Art Studio suitable for illustrating, say, graphic adventures.

If The Art Studio gave the option of using multi-colour mode instead of just hi-res, it would be easier to use. As it is, the "front end" is excellent, and with some preplanning good effects can be achieved. An advanced version (which may offer multi-colour mode) is on the way next year.

Artist 64 text, fill, patterns

Very similar in its Macintosh-style icon controls, is the GeoPaint section of GEOS. For those of you unfamiliar with GEOS, it's an operating system intended to drag the CBM 64 kicking and screaming into the ST/Amiga/Macintosh world of windows, icons and menus. GEOS includes GeoWrite, a word processor, a "desktop" routine featuring icon-based disk handling, and, among many other features, the graphics package GeoPaint.



GeoPaint presents a menu bar on the left hand side of the screen, containing icons for all the standard functions, brushes, freehand, circles, fill, undo, grid, and text. GeoPaint can use any of the font shapes available from GEOS, which makes it ideal for producing, say, labelled diagrams.

Artist 64

Like The Art Studio, GeoPaint suffers from operating in hi-res mode, so expect problems with colour clashing. Otherwise it's quite powerful, despite the lack of mouse driving software which should be rectified soon.

The third package we'll look at is Artist 64, from Wigmore House. Best known in the Commodore market for the Wigmore Mouse and the Cheese graphic design package (both of which are included in

the Commodore Connoisseur's Compendium), Wigmore House has come up with what may be the best graphics package possible on the 64

Artist 64 doesn't have pull-down menus or icons, which in some ways is a step backwards from the excellent but limited Cheese package. However, Artist 64 offers facilities which astound everyone who sees them, and which squeeze Amiga like graphic performance out of the humble 64

Operating either with the Wigmore Mouse or a joystick, Artist 64 has five main screens: main menu, special effects menu, input/output menu, colour priority grid and drawing screen. Two disks are provided with the package, the first contains the main program, the second some extra utilities for disk users such as a disk catalogue routine, and some demo pics and routines.

The main menu contains the list of the basic drawing features, which are highlighted when you click on them with the mouse button (or by pressing the joystick fire button). You can then move to the blank painting screen and begin

Basic functions include line, freehand, circle, ellipse, fill, rectangle, triangle, and set colour for ink/paper/border. Also included on the main menu are options for gridlock, which limits the movement of the drawing cursor to a user-definable grid pattern, magnify, which allows a screen window to be blown up for detailed work, and options to enter the special effects and i/o menus.

The i/o menu includes a QWERTY keyboard, which you can click on to enter filenames or to write text for your painting, and a list of five types of file, picture, pattern, brush, sprite and utility, which can be loaded, saved and catalogued with their own identifying prefix

So far Artist 64 appears to be a comprehensive but unremarkable package. The special effects (SPFX) menu, however, turns it into an incredible and unique program

The SPFX menu revolves around some sophisticated concepts, colour priority, cycling, and block copying. Apart from being able to define your own fill patterns and brush shapes, which can create some incredible effects in itself, you can also cut out any shape you have drawn on the screen and use it as a "sprite" to draw with. The Smiley Face example shown here was drawn using the circle, fill and zoom options, then cut out using the Cut Out Sprite option, and used as a "potato print" stamped all over the screen. To make things even more impressive, you can then set a "colour cycle" option

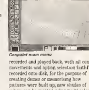
Previously seen only on ST's and Amigas, Colour Cycle allows you to select any of the sixteen available colours from a bar above the SPFX menu, and set a speed for the cycle. The colours in which you paint then change at the set rate as you create your picture. This facility can be used with any other routine – circles, freehand, polygons – to create instant patterns which would otherwise require hours of work

Protect

Moving to the Set Protection page, you can then choose which colours appear above which others, by entering squares on a priority grid. When you paint now, high priority colours will automatically overlay low-priority ones, making it possible to create incredible 3 D brush effects, and to easily place figures in the background without overpainting foreground objects.

There are lots of other features which enable you to produce graphic effects which would be impractically complicated, or simply impossible, using The Art Studio or GeoPaint. You can store a cursor position, and draw, say, concentric circles around this central point; you can enter text in any size from 5×5 to 160×200 pixels, or in an italic style; you can substitute any given colour for any other within a definable window, you can limit the drawing window to any size of your choice; you can select SOLID to produce filled polygons rather than outlines, sprites can be flipped horizontally or vertically, two screens can be held in memory at once, so that you can either use the UNDO function, or deselect it and use the second screen as a "scratchpad", "performances" can be

Rainbird Art Studio hi-res demo screen



Geopaint main menu

recorded and played back, with all control movements and option selection faithfully recorded onto disk, for the purpose of creating demos or memorising how pictures were built up, new shades of colour can be created using multi-colour sprites, and rainbow airbrush effects can be tailored according to your needs

It goes without saying that your masterpieces can be stored to disk or tape, and printed out on MPS 801/803/1525/Epson printers

Overall, Artist 64, though lacking the convenient pull-down menus of The Art Studio and GeoPaint, is without doubt the most impressive graphics package for the Commodore 64

There are a few shortcomings, the lack of predefined brushes and fill patterns, the cumbersome jumping from one menu to another to access basic functions like UNDO, but with the aid of the MS-2000/Neos mouse and a good deal of practice, you will soon be able to create graphics on the 64 which you thought were only to be found on the Amiga. Unless you need to use hi res mode (for very precise technical diagrams perhaps), Artist 64 should give you everything you want, and avoids the shortcomings of The Art Studio and GeoPaint by operating in multi-colour mode

Exciting

Having re-thought the whole concept of Commodore graphics creation, programmers Ian Bradbury and Rhys Davies are to be congratulated on coming up with the most exciting software package for the 64 since – well, since Cheese. Artist 64 is a compulsory purchase (and the obvious upgrade for anyone buying the Commodore Connoisseur's Compendium, which includes the mouse and Cheese) and cannot be praised too highly ◀

SUPPLIERS

Rainbird, 74 New Oxford Street, London 01-631 5206
First Analytical, 6 Newcomen Street, London SE1 1YR 01-524 5630
Wigmore House, 32 Savile Row, London W1X 1AG 01-734 0173

Print shop is font-astic

PREPARING GRAPHIC DOCUMENTS WITH YOUR PRINTER COULDN'T BE EASIER USING PRINT SHOP, SAYS KENNETH ROBESON

Since one of the computer's most obvious talents is the manipulation of text, and another popular application is graphics handling, it was only a matter of time before someone produced easy-to-use software which combined the two in a useful way. **The Print Shop** packages enable you to produce letterheads, posters, notices, leaflets and banners, complete with impressive illustrations and text faces, with absolutely no knowledge of art or design.

POPULAR COMPUTING WEEKLY
12/13 LITTLE NEWPORT STREET
LONDON WC2H 7PP

To give you some idea of how easy the basic package is to use, the PCW letterhead shown here was produced within five minutes of loading the software for the first time.

The Print Shop isn't exactly a "pagemaker" in the way that **Fleet Street Editor** is, it doesn't allow you to combine large quantities of different text sizes and many illustrations on a page. What it does is to give you quick and easy access to a library of preset text styles, patterns and graphics which can be combined in many different ways to produce polished 'graphic documents".

The basic package is compatible with a huge range of Commodore and non Commodore printers. It's best to start with a new ribbon, since The Print Shop is obviously very printer intensive.

Booting the disc brings up the main menu, which invites you to indicate which printer and interface you are using. From then on it's all very non technical and user friendly.

Several different styles of document can be selected from the next menu, greetings cards, signs, letterheads, banners and so on. It's just a matter of using the cursor keys to highlight the type you want, and pressing RETURN to move to the next menu. Each document offers different design options. Taking as an example Greetings Card, you start by choosing a border style. Nine different borders are illustrated, just choose the one you want. The next selection is Graphic, a "cartoon" which can be selected by name, number, or from another disc (as we'll see later). The graphics cover a huge range, animals, houses, wedding bells, musical instruments, hearts, rockets, flowers and so on; and are drawn in an appealing cartoon style. You can choose one of three print sizes for your graphic.

The next task is to enter the message for the front of the card, choosing from eight sophisticated font styles which can be combined in a number of sizes and patterns. Coloured tractor-feed paper and envelopes are included with the package. Having formatted the message using the size, position and solid/outline/3 D options, you can go to the printer menu, enter the number of copies, test the paper position, then, after a short pause while the computer is thinking, watch as your greetings card rolls off the printer!

THANKS FOR
THE FUN

COME TO OUR
THANKSGIVING
FEAST!

Other options such as banner and letterhead offer different screen designs and text arrangements, while the Print Magic function produces psychedelic Colourspace type designs which can be frozen and incorporated into your documents.

Once you have exhausted the possibilities of the graphics library, which could take some time, there are two options, either use the Graphic Editor (a straightforward sort of "sprite designer" which can be used with a joystick or Koalapad), to modify existing graphics or put together new ones, or go for the Graphics Library packages.

The two packages released so far each contain 120 extra graphics, the first, of holidays, special occasions, sports and so on, and the second covering jobs, people, places, hobbies and more. Both discs are double sided to cope with both CBM and non CBM printers.

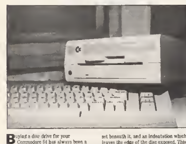
To get the absolute maximum from The Print Shop, you'll want the **Print Shop Companion.** This package contains yet more typestyles, borders and background designs, plus a powerful new graphics editor with features more like a full graphic design package. There's also a Tile Magic feature which uses mirror effects to produce tesellated designs, a font editor to create whole new typestyles or edit old ones, a border editor, a calendar maker, and a "creature maker" which allows you to combine sections to create bizarre monsters.

After lots of tantalising write-ups in American magazines, and limited availability through specialist importers, it's great to see the Print Shop series available at reasonable prices through Precision Software. Without doubt one of the most useful, user-friendly and intelligently designed software utilities for the 64, The Print Shop should be high on your shopping list for Christmas if not before ◀

Product: The Print Shop/Graphics Library/Print Shop Companion
Micro: CBM 64, 128
Price: £39.95/£24.95/£30.95
Supplier: Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ, 01-330 7166

Driven to discs

NOW YOU HAVE A CHOICE OF COMMODORE DISC DRIVES. JOHN RENWICK COMPARES THE "OFFICIAL" CBM 1541C AND THE "CHALLENGER", THE ENHANCER 2000



Buying a disc drive for your Commodore 64 has always been a harrowing experience. Because the unique Commodore serial interface is compatible only with CBM disc drives, the choice has always been limited, unless you want to invest in an IEEE interface and one of the heavy duty disc units usually associated with the ancient PETs.

Flexible

For most users, the only choice has been the 1541, which is the size and weight of a breese block and moves about as fast, or the 1570 which at least offers faster performance though no improvement in looks.

Now the choice has become more flexible if you should buy a new 64C (identical internally to the 64 but with a more modern case), or if you wish to upgrade your existing 64 system to disc, you can either go for the latest from Commodore or save money with the Enhancer 2000.

The new option from Commodore is the 1541C. Functionally identical to the 1541, it's produced in the same new colour as the 64C, a light cream, and features an improved door system. Instead of the "pop door" found on the original 1541 and the 1570, the 1541C features a "spin door". This involves a door latch similar to that found on the C128D (and the 1571 double sided disc drive), with the operation LED set beneath it, and an indentation which leaves the edge of the disc exposed. This makes it much easier to load and unload the discs, especially should a loose label jam the drive, and looks much more modern.

The arrangement at the back, with two serial ports, power input, on/off switch and fuse, is identical to that of the 1541. Included with the disc drive is a 100-page manual and a test/demo disc, which includes printer test, disc address change, block allocation map view, disc check, header change, unscratch and other useful routines, possibly enough useful stuff to influence your choice of what to buy. The price? A cringe making £249, unless you can find a bulk dealer offering discounts.

Enhancer

So what's the alternative? The Enhancer 2000 is a Commodore-compatible device manufactured by an American company, and distributed over here by Firstline Software. It's smaller, neater and lighter than the 1541, and features a direct drive motor which should make it more reliable than the Commodore belt-drive system. Perhaps crucially, it's also only £148, and comes with what sounds like an excellent word processing program.

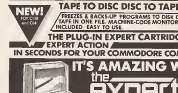
The Enhancer 2000, designed by Chinon, has a separate power transformer which eliminates most of the overheating problems experienced with the 1541. Like the 1541, the Enhancer features power and busy LEDs, two serial connectors, and a "pop door".

In a sense it's fully Commodore compatible, since you can use all the standard file, format, scratch, and other CBM DOS commands. The Enhancer, like the 1541, is an "intelligent" device, with its own 2K RAM and 6502 processor. Storage capacity is also the same as the 1541's, with 65535 records per file and 644 formatted blocks per disc.

Turbo

The Enhancer is about the same width as the 1541, but half the height and weight. Overall it's a nice little unit, and comes complete with the sophisticated Masterwriter icon-driven word processor from Sierra On-Line, all necessary leads, and a blank disc.

So what's the catch - there has to be one? Well, the Enhancer can't cope with the disc turbo loaders often used on UK games. It can manage US Epyx and many other programs, but in effect this means that it cannot be seriously considered by the ardent games player. The good news is that 99% of "serious software" - word processors, databases, spreadsheets, utility packages - don't use turbo loaders, and will therefore work perfectly with the Enhancer. Of course, it's also ideal if all you want to do is write and store your own Basic or machine code programs. Enhancer even claims to be faster than the Commodore 1541. So which is your choice? Complete compatibility with the expensive, bulky 1541, or economy and increased reliability with the business-oriented Enhancer? Only time will tell which option appeals more to the discless Commodore user ◀








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Michael

Renumber

Dr Paul Mooney

This routine features the ability to correctly reassign all *Goto, Gosub, Restore* and *List* statements, even when the reference made is to lines which do not exist or are beyond the end of the program.

Enter the hexadecimal code and the checksums line by line using the hexloader provided and save it with *Save "Renumber" Code 64000, 542*.

To call the routine enter *Randomize Usr 64000* and enter your first desired line number followed by the line number increment. Simply pressing *Enter* results in the routine defaulting to a value of 10.

BASIC listing for Hexloader

```
  10 CLEAR 63999: POKE 23658,8
  20 FOR i=64000 TO 64536 STEP 8
  30 LET cs=0
  40 INPUT "Input the 8 bytes of line",STR$ i; AT 1,25;" ";"" LINE a$
  50 IF LEN a$<>16 THEN GO TO 130
  60 FOR n=0 TO 7: GO SUB 140
  70 LET cs=cs+b: POKE i+n,b
  80 LET a$=a$(3 TO )
  90 NEXT n
 100 INPUT "checksum"; LINE a$
 110 GO SUB 140: LET cs=cs-256*INT (cs/256): IF b<>cs THEN GO TO 130
 120 NEXT i
 130 BEEP .4,1: INPUT "Error. Re-enter line ";STR$ i; AT 1,20;" ";"" LINE a$: GO TO 50
 140 LET y=CODE a$(1)-48: IF y>9 THEN LET y=y-7
 150 LET z=CODE a$(2)-48: IF z>9 THEN LET z=z-7
 160 LET b=16*y+z: RETURN
```

HEXADECIMAL CODE FOR RENUMBER

```
000 06 16 CD 44 0E 0E 02 CD (4A)
008 01 16 01 21 10 CD D9 0D (FC)
016 11 DA FB 01 20 00 CD 3C (10)
024 20 CD AE FB ED 42 CE FB (5F)
032 CE 3E 02 CD 01 16 11 FA (F4)
040 FB 01 20 00 CD 3C 20 CD (13)
048 AE FB ED 42 D0 FB E1 A7 (EC)
056 ED 42 22 D5 FE 03 D9 2A (3E)
064 53 5C ED 4B 4B 5C 23 23 (D4)
072 5E 23 56 23 19 E9 09 D5 (CE)
080 A7 ED 42 09 06 F0 D9 11 (F1)
088 10 27 A7 ED 52 D2 00 FA (E9)
096 2A 53 5C E5 DD 21 1E FC (D6)
104 2A D5 FB ED 5B D0 FB 19 (27)
112 22 D5 FB EB E1 46 72 23 (9A)
120 4E 72 23 DD 71 00 DD 70 (7F)
128 01 DD 73 02 DD 72 03 DD (52)
136 23 DD 23 DD 23 DD 23 5E (91)
144 23 56 23 19 E5 ED 5B 4B (2D)
152 5C A7 ED 52 38 CA E1 DD (02)
160 00 00 03 2A 53 5C 2B CD (54)
168 D4 FA 23 7E FE 0E CC CE (15)
176 FA FE 0D CC D4 FA FE EC (69)
184 CC E5 FA FE ED CC E8 FA (47)
192 FE F0 CC E8 FA FE E5 CC (46)
200 E8 FA 18 DE CF FF 11 05 (EC)
208 00 18 AF C9 23 ED 4B 4B (37)
216 5C F1 ED 42 09 D2 CC FA (DC)
224 03 23 22 D8 FB 23 AF C9 (D6)
232 E5 23 7E FE 3E 28 15 01 (D0)
240 01 00 CD E8 19 D9 2A D8 (AA)
248 FB 7E 06 01 77 00 02 2? (1?)
256 15 C9 18 E8 E5 23 CD 64 (35)
264 3C CD A8 2C CD 21 1A FC (E?)
272 11 0F 2? ED 43 D2 FB DD (21)
280 22 D4 FB 3E 63 DD 8E 00 (4A)
288 28 23 DD 6E 00 DD 66 01 (DA)
296 ED 4B D2 FB A7 ED 42 28 (23)
304 0A ED 52 30 06 13 E5 DD (60)
312 22 D4 FB DD 23 DD 23 DD (3E)
320 23 DD 23 18 D8 DD 2A D4 (EC)
328 FB DD 6E 02 DD 66 03 DD (65)
336 E1 DD E5 DD 23 AF DD 77 (AE)
344 00 DD 77 01 DD 75 02 DD (9E)
352 74 03 DD 77 04 D9 E1 16 (9F)
360 00 D9 11 E8 03 CD 85 FE (22)
368 11 64 00 CD 85 FB 11 0A (DD)
376 00 CD 8E FE 11 01 00 CD (2C)
384 85 FB E1 AF C9 3E 2F 47 (ED)
392 ED 52 38 30 FB 13 D9 F5 (6D)
400 FE 30 29 13 CD 52 16 E5 (53)
408 2A DB FB 34 20 02 23 34 (AA)
416 E1 F1 2E 77 20 D9 C9 AF (E0)
424 AA 20 E9 F1 D9 C9 CD 50 (C1)
432 16 AF CD 01 15 CD 2C 0F (51)
440 2A 59 5C 22 5D 5C 7E CD (0E)
448 3B 20 CD A2 2D 38 E7 78 (3B)
456 B1 C0 01 0A 00 C9 40 00 (2C)
464 20 00 5A 00 42 FC E6 04 (9F)
472 FF 60 20 20 20 20 49 4E (6E)
480 50 55 54 20 46 49 52 53 (4D)
488 54 20 4C 49 4E 45 20 4E (0A)
496 55 4D 42 45 52 20 20 20 (D6)
504 20 20 20 20 20 20 20 20 (00)
512 49 4E 50 55 54 20 4C 49 (45)
520 4E 45 20 49 4E 54 45 52 (35)
528 56 41 4C 20 20 20 20 20 (8C)
536 20 20 0F 27 0F 27 00 00 (AC)
```


Race Advisor

Nicky Morris

This program, which runs on all Amstrad CPCs analyses from the data entered, and then displays ratings for each horse in the race leaving the operator to choose which to back

To use the program effectively it is necessary to have the racing section of a newspaper, or better still a racing paper

When entering course conditions enter good, good to soft, soft etc The distance must be entered as decimal, one mile four furlongs being 1 4, for example

Form is usually entered as a number between one and 100 but if your paper simply puts a dot beside a horse give that horse 100 and the others 80

If a horse s preferred ground is not known then simply press enter

An overall percentage of wins using this system worked out at 71% over a trial period

If you would like a copy of the program presented over two weeks, plus data for several famous race tracks, then send £3.25 to me Nicky Morris, at 22 Richard Street, Dunstable, Bedfordshire LU5 4BH

```
5 ON BREAK GOSUB 30".
60 DIM A$,=3),n NAMES 49).'[RM$ ==),F.=)
(49) TRAINER$(49 ,JOCKEY$(49)
70 DIM WEIGHT(49) AGE(49),wgt$(49),weigh
t$(49 ,RESULT(49 [illegible] ,49, TOTAL(49) RES.
LT$ 49),g und$(49
80 MODE  :BORDER ,
90 PEN 5:INK 6 .
100 PLOT 10..0,E
110 DRAW 1..390
120 DRAW 620,390
130 DRAW 639,.
140 DRAW   ..
150 PLOT 2 ,20
160 DRAW 20 380
170 DRAW 620 380
180 DRAW 620,20
190 DRAW 20,2.
200 PAPER 1:PEN 5
210 LOCATE . ,1::PRINT THE RACE ADVISOR.

220 A$=" THE ULTIMATE HORSE TIPSTER,
230 PRINT PEN 7:LOCATE 6,13
240 FOR N=. TO LEN A$).FOR Y=1 TO 4I
250 NEXT Y:SOUND . 175 .,.E
260 PRINT MID$(A$ N .1.:NEXT N
270 LOCATE .. .E:INK 2,14.:PEN .
280 PRINT"** PRESS ANY KEY **"
290 Z$=INKEY$
300 IF Z$="" THEN 290
310 INK 2,2.,20
320 MODE .
330 INK 1 25:BORDER 6
341 LOCATE 2 .2 PEN 7
350 PAPER 2
360 LINE INPUT  ENTER COURSE , ";COURSE$
370 course$=UPPER$(course$)
380 IF LEN(COURSE$) 12 OR COURSE$="" THE
N 340
390 MODE 1
400 INK 0,25:INK 2,20,20 BORDER 6:PEN 7:
PAPER 2
410 PRINT:PRINT
420 PRINT            FORMULATOR MENU.

430 PAPER 2:PRINT
440 PRINT   :COURSE$:  MAIN..
450 FOR V=1 TO LEN(COURSE$)+9
460 PRINT"- ;:NEXT V
470 PRINT:PRINT
480 PRINT" . ... SAVE TRACK DATA"
490 PRINT:PRINT" 2 ... LOAD TRACK DATA"
500 PRINT:PRINT" 3 ... CREATE TRACK DATA
"
510 PRINT:PRINT" 4 ... FORMULATE RACE RE
SULTS"
520 PRINT:PRINT" 5 ..  EXIT RACE ADVISOR
 PROGRAM":LOCATE 1,2:PAPER 2
530 PRINT" PLEASE ENTER APPROPRIATE CHOI
CE: "
540 C$=INKEY$:IF C$="" THEN 540
550 LOCATE 34,20:PRINT C$;
560 FOR A=1 TO 150:NEXT A:LOCATE 34,2.:P
RINT" "
570 A=ASC(C$):IF A<49 OR A 53 THEN 540
580 C=VAL(C$)
590 ON C GOTO .. [illegible]
600 LOCATE 34 2:PRINT    :LOCATE 1.2
610 GOTO 5[illegible]
620 GOTO 430
630 LOAD TRACK DATA
640 PAPER 1:PRINT
650 OPENIN course$+".DATA"
660 FOR N=1 TO 9:INPUT #9,JOCK$(N)
670 INPUT #9,TRAIN$(N):NEXT N
680 INPUT #9,COURSE$:INPUT #9,DRA$
690 CLOSEIN
700 GOTO 390
710 MODE . [illegible]
720 PRINT
730 PRINT"     TRACK DATA ENTRY ADMINISTR
ATOR:"
740 PRINT"     --------------------------
-----"
750 PRINT
760 INK 2,4,4:PEN 2
770 PRINT  ENTER TOP 9 JOCKEYS DECREASIN
G IN        QUALITY RIDING AT " COURSE$"
:"
780 PEN 7:PRINT
790 FOR N=1 TO 9:PRINT N;:LINE INPUT ..
. ";JOCK$(N)
800 JOCK$(N)=UPPER$(JOCK$(N)):PRINT:NEXT
 N
810 MODE 1
820 PRINT
830 PRINT"     TRACK DATA ENTRY ADMINISTR
ATOR:"
840 PRINT"     --------------------------
-----
850 PRINT:INK 2,4,4:PEN 2
860 PRINT" ENTER TOP 9 TRAINERS DECREASI
NG IN       QUALITY AT  :COURSE$: :
870 PEN 7:PRINT
880 FOR N=1 TO 9:PRINT N;:LINE INPUT ..
. ";TRAIN$(N)
890 train$(n)=UPPER$ train$(n):PRINT:NE
XT N
900 MODE 1
910 WINDOW 1,33,7,.5:PAPER 7.CLS
920 WINDOW .1,29,8 .7:PAPER 5:CLS
930 LOCATE 5,6:PRINT TRACK DATA"
940 LOCATE 6,5:PRINT"ENTRY :LOCATE 6.7:P
RINT"COMPLETE
950 T[illegible]=VAL(G$)
960 [illegible]
970 GOTO . [illegible]
980 LOCATE 28 . PRINT    :LOCATE 1,.8
990 GOTO . .
1000 GOTO 390
1010 SAVE TRACK DATA
1020 PAPER 1:PRINT
1030 OPENOUT course$+".DATA
1040 FOR N=1 TO 9:PRINT #9, [illegible]
1050 [illegible]
1060 PRINT #9,COURSE$:PRINT #9,DRA$
1070 CLOSEOUT
1080 GOTO 390
1090 MODE .
1100 PRINT:INPUT" Enter course grou[illegible]
s ";grd$
1110 grd$=UPPER$(grd$)+"CDE
1120 PRINT
1130 PRINT       ENTER BEST DRAW POSITIO
N
1140 PAPER 1
1150 PRINT:PEN 7:PRINT        1.....
LOW DRAW
1160 PRINT:PRINT           2.... HIGH D
RAW
1170 PRINT:PRINT           3.....NO EFF
ECT
1175 PAPER 7:PEN 2
1180 A$=INKEY$:IF A$="" THEN 1180
1190 LOCATE 19...:PRINT A$; A=ASC A$)
1200 FOR N=. TO .50:NEXT N
```

continued on page 44 ▶

◀ continued from page 43

```
[illegible] LOCATE [illegible]
[illegible] IF [illegible]
[illegible] IF a$= [illegible] THEN [illegible]
[illegible] IF a$= [illegible] THEN [illegible]
[illegible] IF a$= [illegible] THEN [illegible]
[illegible] MODE [illegible] PRINT
[illegible] LOCATE [illegible] LINE INPUT "ENTER [illegible]
[illegible]
[illegible] IF D$= [illegible] THEN [illegible]
[illegible] MODE [illegible] PAPER [illegible] PEN 7
[illegible] PRINT
[illegible] how many runners [illegible]
[illegible]
[illegible] runners<3 OR runners>[illegible] THEN [illegible]
[illegible]
[illegible] enter name s[illegible]
[illegible] runners
[illegible]
[illegible] PEN [illegible] runner no.
[illegible] s name=
[illegible]
[illegible] a$(r)=UPPER$(a$(r)) [illegible] IF a$(r)= [illegible] OR
LEN(A$(r))[illegible] THEN [illegible]
[illegible] NEXT r
[illegible]
[illegible] PEN 2:PRINT:PRINT "enter form[illegible]
[illegible] FOR r=1 TO runners:PRINT:PEN 3:PRINT
"Enter [illegible] PEN 5:PRINT a$(r) [illegible]
[illegible] PEN [illegible]
[illegible] LINE INPUT [illegible] form$(r):[illegible]
=VAL(FORM$(r))
[illegible] NEXT r
[illegible] CLS:PRINT
1480 PRINT:PRINT "enter results of [illegible]
[illegible] races:
[illegible] PRINT
[illegible] FOR r=1 TO runners
[illegible] PEN [illegible] LOCATE [illegible] PRINT [illegible]
[illegible]
[illegible] PEN 2:LINE INPUT RESULT$(r)
[illegible] IF LEN(RESULT$(r))<>3 THEN [illegible]
MID$(result$(r),1,1)
[illegible] IF a$= [illegible] THEN tot(r)=tot(r)+[illegible]
```


Brother Width

Steven Gray

If you have a Brother EP44 (or certain other printers) then you will have discovered that the QL *Width* command doesn't work when listing Basic programs. This routine not only allows you to define the line length but also where on the page the listing is to be printed. Also, the program separates line numbers and program text to make it easier to read.

To use the procedures the following command must be used: *flist (tab setting, line length, mdv1_filename)*

Users of printers other than the EP44 should omit lines 220 and 360 since these substitute an ordinary EP44 zero with a slashed zero (Ascii 237). Also, the baud and channel definitions on line 110 may need to be altered.

```
100 DEFine PROCedure flist (tabset,linelen,d$)
110 BAUD 1200 OPEN#3 ser1c newline=1
120 IF tabset<1 OR tabset>80 PRINT#3,'Tab setting outside range' RETurn
130 IF tabset+linelen-6>80 PRINT#0 'Line length outside range' RETurn
140 OPEN_IN#6 d$
150 REPeat loop
160 line$=''
170 IF newline linenum
180 FOR n=1 TO linelen-6
190 IF EOF(#6) EXIT loop
200 i$=INKEY$(#6)
210 IF i$=CHR$(10) newline=1 EXIT n
220 IF i$=CHR$(48) i$=CHR$(237)
230 line$=line$&i$
240 newline=0
250 END FOR n
260 IF line$<>'' PRINT#3,TO tabset+6,line$
270 END REPeat loop
280 CLOSE#6
290 END DEFine
300
310 DEFine PROCedure linenum
320 lno$=''
330 FOR i=1 TO 6
340 IF EOF(#6) RETurn
350 i$=INKEY$(#6) IF i$<'0' OR i$>'9' EXIT i
360 IF i$=CHR$(48) i$=CHR$(237)
370 lno$=lno$&i$
380 END FOR i
390 PRINT#3,TO tabset lno$;
400 FOR j=1 TO 5 PRINT#3,CHR$(32);
410 END DEFine
```

Soccer

by Mark Slater

The week features the final part of Soccer for the BBC/Electron. The program is well documented with *Rem* statements so should not only be easily adaptable to other computers, but also easy to expand and build upon.

If you would like a copy of Soccer on cassette then send £2 to Mark Slater of 54 Leverhouse Lane Leyland, Lancashire PR5 2XN

```
3380REM**** Double height routine ****
3390REM
3400DEFPROCdouble_height(word$,x,y)
3410FORloop=1TOLEN(word$)
3420ascii=ASC(MID$(word$,loop,1))
3430?&70=ascii
3440X%=0:Y%=&70:A%=10
3450CALL&FFF1
3460VDU23,250
3470FORloop2=1TO4
3480VDU?(&70+loop2),?(&70+loop2)
3490NEXTloop2
3500VDU23,249
3510FORloop2=5TO8
3520VDU?(&70+loop2),?(&70+loop2)
3530NEXTloop2
3540PRINTTAB(x,y);CHR$(249)
3550PRINTTAB(x,y+1);CHR$(250)
3560x=x+1
3570NEXTloop
3580ENDPROC
3600REM** END OF SEASON COMMENTS **
3610
3620DEFPROCend_of_season
3630CLS
3640COLOUR2
3650PROCdouble_height("End of Season",1
,3)
3660count=0:flag=0
3670REPEAT
3680pos=order(count,1)
3690IF pos=team THEN position=count+1:f
lag=1
3700count=count+1
3710UNTILflag=1
3720IFposition>9 AND division=4THEN PRO
Cendgame
3730IFposition=1 AND division=1THEN PRO
Cgamewon
3740PRINTTAB(1,5);"You have finished in
position ";position;" and"
3750div=0
3760IF (position>3 AND position<10) OR
(division=1 AND position>1) THEN sentenc
e$="your team will remain in its present
   division next season"
3770IF position<4 AND division>1 THEN s
entence$="this means that your team is p
romoted  to division "+STR$(division-1)
:div=-1
3780IF position>9 AND division<4 THEN s
entence$="your team will be relegated fo
r next    season":div=1
3790PRINTTAB(1,6);sentence$
3800division=division+div
3810PROCspace
3820ENDPROC
3840REM******* INSTRUCTIONS *******
3850
3860DEFPROCinstructions
3870COLOUR129:COLOUR0
3880VDU28,0,5,39,0:CLS
3890PROCdouble_height("INSTRUCTIONS",14
,3)
3900VDU26
3910COLOUR129:COLOUR1
3920PRINTTAB(0,7);"The OPTIONS"
3930PRINT'"The option page gives you 4
choices , of which this is the first.You
may return to the option page any time
by pressing the  ESCAPE  key."
3940PRINT'"The second option allows you
 to choose  the name of your team.You ma
y only use  the names that the computer
displays."
3950PRINT'"The third option starts the
actual game which is explained fully on
the next   page."
3960PRINT'"The last option ends the pro
gram and    returns you to BASIC."
3970PROCspace
3980VDU28,0,30,39,6:CLS
3990PRINTTAB(0,1);"The GAME"
4000PRINT'"The first screen will displa
y your team with each players individual
 skill      rating and his strength. Pla
yers can be removed or added to the team
 by choosing the change team option (by p
ressing 'C')"
4010PRINT'"For each game a player plays
in he will lose one unit of strength but
 he will   gain four units if he is rest
ed."
4020PRINT'"The strengths of each of you
r team areas(defence, midfield & attack)
, are shown at the bottom of the screen.
 In the red box at the bottom right of t
he screen is your opponents name and thei
r strengths."
4030PRINT'"The game will end when you ei
ther finish first in the first division,
winning the game, or finishing in the las
t three of the forth division, losing th
e game."
4040VDU26
4050PROCspace
4060ENDPROC
4070REM******** ERROR ROUTINE ********
4080DEFPROCerror
4090IF ERR=17 THEN RUN
4100REPORT:PRINT" at line ";ERL
4110END
4120DEFPROCendgame
4130PRINTTAB(0,5);"You have finished in
 the bottom three ofthe forth division a
nd you have been    kicked out of the le
ague."
4140PRINT'"Would you like to apply for
re-election into the  league ? (Y/N)
4150REPEAT
4160key$=GET$
4170IFkey$="Y" THEN RUN
4180UNTILkey$="N"
4190CALL&D0.
4200DEFPROCgamewon
4210PROCdouble_height("Congratulations"
,12,6)
4220PRINTTAB(0,8);"You have won the lea
gue , well done."
4230PRINTTAB(0,10)'"Would you like to p
lay again ?"
4240REPEAT
4250key$=GET$
4260IFkey$="Y" THEN RUN
4270UNTILkey$="N"
4280CALL&D00
4290DEFPROCmachine_code
4300P%=&D00
4310[OPT0
4320JMP(&FFFC)
4330]
4340ENDPROC
4350DEFPROCsquad
4360RESTORE4460
4370FORl=1TO16
4380READsquad$(l):strength(l)=RND(5)
4390NEXT
4400 FORl=1TO11:READplayer$(l):NEXT
4410FORk=1TO16:READskill(k):NEXT
4420FORkz=1TO30
4430g1=RND(16):g2=RND(16)
4440temp=skill(g1):skill(g1)=skill(g2):
skill(g2)=temp
4450NEXT
4460DATA"d P. Shilton","d T. Butcher"
,"d K. Sansom","d A. Martin","d M. Sl
ater","m R. Wilkins","m B. Robson","m
 G. Stevens","m K. Dalglish","m G. Sou
ness","m K. Keegan","a K. Dixon","a G
. Lineker","a I. Rush"
4470DATA"a F. McAvenny","a D. Sage"
```

continued on page 46 ▶

◀ continued from page 45

```
4480DATA1,2,3,4,5,7,8,9,10,11,14
4490DATA2,2,2,2,2,3,3,3,3,2,4,4,4,4,4
4500ENDPROC
4510DEFPROCchange
4520VDU28,0,31,39,29
4530CLS
4540PRINTTAB(1,0)"Enter number to be r
emoved :";
4550INPUT rm
4560plflag=0
4570FORI=1TO11:IFplayer(I)=rm THEN plfl
ag=1:plnum=I
4580NEXT
4590IFplflag=0 OR rm=0 THEN 4530
4600PRINTTAB(1,1);"Enter number to be a
dded  : ";
4610INPUT ad
4620plflag=0
4630FORI=1TO11:IFplayer(I)=ad THEN plfl
ag=1
4640NEXT
4650IFplflag=1 OR ad=rm OR ad<1 OR ad>1
6 THEN PRINTTAB(1,1);STRING$(38," "):G
OTO 4600
4660player(plnum)=ad
4670VDU26
4680PRINTTAB(7,rm+6)" ":PRINTTAB(30,rm
+6);stren(rm)" "TAB(24,rm+6);skill(rm)
." "
4690PROCon
4700PRINTTAB(7,ad+6);"*":PRINTTAB(30,ad
+6);stren(ad):TAB(24,ad+6);skill(ad)
4710IFstren(ad)<10THENPRINTTAB(31,ad+6)
." "
4720PROCoff
4730VDU 28,0,11,39,29:CLS
4740VDU26
4750ENDPROC
4760DEFPROCcommentary
4770result$=team$(team)+" 0  0 "+team$(
match):tab=17-LEN(team$(team))
4780PROCdouble_height(result$,tab,7)
4790com=1
4800IF score1=0THEN4850
4810FORI=1TOscore1
4820com(com)=match+1
4830com=com+1
4840NEXT
4850IFscore2=0THEN4900
4860FORI=1TOscore2
4870com(com)=team+1
4880com=com+1
4890NEXT
4900com=com-1
4910FORI=1TO10
4920s1=RND(com)
4930s2=RND(com)
4940temp=com(s2):com(s2)=com(s1):com(s1
)=temp
4950NEXT
4960co1=0:co2=0
4970las=RND(5):lr=0
4980REPEAT
4990PROCon
5000VDU28,1,14,38,10
5010CLS
5020VDU26
5030g=RND(2)
5040IFg=1 THEN te=team ELSE te=match
5050PRINTTAB(2,11);team$(te);" have pos
session."
5060PROCwait
5070PRINTTAB(2,12);"they run at goal, s
hoot and...."
5080PROCwait
5090g2=RND(2)
5100g3=0
5110IF(co1=score1) AND g=1 THEN g2=2
5120IF(co2=score2) AND g=2 THEN g2=2
5130IFg=1 AND g2=1 THEN co1=co1+1
5140IFg=2 AND g2=1 THEN co2=co2+1
5150IFg2=1 THEN pr$="it's a GOAAAALLLL
LLLLL":SOUND1,-1,20,10
5160IFg2=2 THEN g3=RND(4)
5170IFg3=1 THEN pr$="it's saved by the
keeper."
5180IFg3=2 THEN pr$="it's put over the
top."
5190IFg3=3 THEN pr$="it's kicked wide o
f the post."
5200IFg3=4 THEN pr$="it hits the woodwo
rk and is cleared."
5210PRINTTAB(2,13);pr$
5220PROCoff
5230PROCdouble_height(STR$(co1),13,7)
5240PROCdouble_height(STR$(co2),21,7)
5250PROCwait
5260IF (score1=co1) AND (score2=co2) TH
EN lr=lr+1
5270UNTIL(score1=co1) AND (score2=co2)
AND las=lr
5280SOUND1,-1,120,10
5290PRINTTAB(11,2);"   (Full Time)
"
5300VDU28,1,14,38,10:PROCoff:CLS:VDU26
5310ENDPROC
5320DEFPROCwait
5330FORj=1TO1350:NEXT
5340ENDPROC
```

Programming: Commodore 64

Disc Help

Gary Mayhew

After running the program two menus are displayed Disc and Printer Press either D or P

From this menu you will be offered a variety of options which are explained as follows

Directory displays the contents of a disc *Scratch* deletes a file *Initialise* reads disc ID etc (after disc change)

Validate collects all the files to free unused blocks

Format prepares a blank disc for use

Rename gives a file a new name

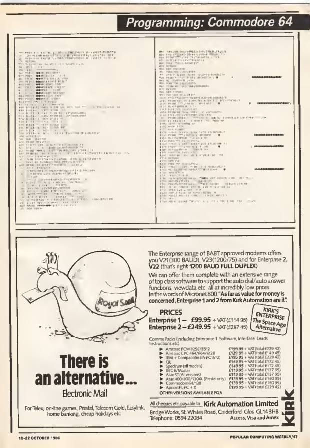
Error is used when the red light flashes, to check the error

Blocks checks how many free blocks there are on the disc

Quit disc returns you to the main menu

As this is a two part listing details of the Printer menu will be given next week

```
100 POKE 53,  POKE 56,48:CLR
110 GOSUB
120 POKE53280,0:POKE53281,
130 PRINT   CHR$(?)
140 DIM
150 SP=
160 X=13:Y=   MX=13:MY=3 CO=7:GOSUB 270
170 PRINT   ;TAB(15); UTILITIES
180 X=21:Y=5:MX=16 MY=1 CO=2:GOSUB 270
190 X=11:Y=   MX=16:MY=1 CO=   GOSUB 270
200 PRINT   ;TAB(8); DISK  TAB(  ); PRINTER
210 X=11:Y=   MX=   MY=1 CO=6 GOSUB 270
220 PRINT   PRESS FIRST LETTER OF THE OPTION
230 GET   IF   D ANDA$<   THEN230
240 IF A$= D  THEN GOSUB 
250 IF A$=P  THEN GOSUB 1
260 END
      POKE 646,CO
280 FOR   TOY PRINT:NEXT
```



Starfield

A W R Crawford

for any Atari 8-bit micro

This program for any eight bit Atari machine will produce, when run, an interrupt driven scrolling starfield which can easily be incorporated into your own games to give them that professional look

```
10GRAPHICS 7 M=PEEK(741)+256*PEEK(742
)-1
20P=INT((M-2048)/2048)*2048 M=P+768
30POKE 54279,P/256 POKE 53255,0 POKE
53277,3
40FOR X=M TO M+255 POKE X,0 NEXT X
50FOR X=M+22 TO M+190 STEP 2 POKE X,6
4 NEXT X
60FOR X=1536 TO 1654 READ D POKE X,D
NEXT X
70FOR X=1664 TO 1791 POKE X,PEEK(5377
0) NEXT X
80D=PEEK(560)+256*PEEK(561) POKE D+3,
205 FOR X=D+6 TO D+84 POKE X,141 NEXT X
90POKE 559,62 POKE 512,0 POKE 513,6 P
OKE 623,8 POKE 707,14 POKE 54286,192
100POSITION 0,0 PRINT "SCROLLING STARF
IELD DEMONSTRATION".STOP
110DATA 72,138,72,174,11 2[illegible],189,128,6
,141,7,208,222,128,6,104,170,104 64
```

Fast Printer

Arnt Gulbrandsen

for the Amstrad CPCs

This machine code routine for any Amstrad CPC speeds up screen printing in *Mode 2* by around 35% Note however that transparent printing is disable As this routine uses locations *&BE80* to *&BEA3* you should avoid using this area

```
10 CALL &BB51-FOR n=0 TO 35 POKE n+&BE80,
VAL("&"+MID$("f55d54cd1abc78c1fe0178etc2
00u0cda5bbcd06b901ff073e08eda00ceb09eb3d
20f7c9",n*2+1,2)).NEXT POKE &BEBD,PEEK(&
BDD4) POKE &BEBE,PEEK(&BDD5)-POKE &BDD3,
195:POKE &BDD4 &80 POKE &BDDS,&BE
```

Disc Turbo

Arnt Gulbrandsen

for the Amstrad CPCs

This routine for the Amstrad CPC series, sits at *&BE80* and speeds up the disc drive by 10%–30% It is compatible with any piece of software which does not use memory at location *&BE80*

```
10 CALL &BD37 'DISC FOR n=0 TO 33 POKE &
BE80+n VAL("&"+MID$("2d00640001040a01030
00000822l0cbecdd4bcd02209be7932Obbe2100b
ed109bec9" 2*n+1 2)) NEXT CALL &BEBD
```

We want your programs

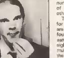
Yes, this is your chance to get rich and famous Well famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages

What sort of thing are we looking for? You name it – anything original from games to utilities, applications and the like, written in Basic machine code or anything else you can think of

Programs for any computer will be considered, not just the old faithfuls (Spectrum, Amstrad, QL, Commodore, etc) so send your listings in for your favourite micro What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words

Alternatively, send in your short programs to the Bytes and Pieces page – what could be easier? In return, we pay the princely sum of £25 per page for the main programming pages and £10 for each Bytes & Pieces contribution we publish Plus the fact that your name will be indelibly carved in the *Popular* Programming Hall of Fame till time immemorial What more could any true programmer ask?

Just send your masterpieces in to **Duncan Evans, Technical Editor, *Popular Computing Weekly*, 12–13 Little Newport St, London WC2H 7PP** and he'll assess them post haste



With Kenn Garroch

Machine code multiplication

P Andrews, of Dover, in Kent, writes

Q I am writing a computer game in machine code and need to multiply a selection of numbers together. Could you tell me how this is done in machine code (6502) and how to implement it on a Commodore 64?

A The fastest method of multiplying numbers on a computer is to create a table of all the possible answers and look up the answer using the two numbers to be multiplied. The problem here is that if you have a lot of answers, too much memory is taken up with the table. The other answer is to use the shift and add method which is a lot faster than adding a number to itself the number of times specified by the other.

Take two numbers – 10x5 for example. In binary these are 1010 and 0101 (I'll use four-bit numbers here but the same rules apply to larger eight or 16-bit solutions). To multiply them together, shift the smaller right one place (LSR). If the carry is set then add the larger number to the result (currently zero). If the carry is not set then don't add and carry on.

Now shift the larger number left one place, ie, multiply by two (ASL). Then go back and shift the smaller one right. In the example the carry would not be set, so shift the larger one left again and shift the smaller right. Now the carry is set so add the shifted larger number to the result. If the smaller number is now zero, the multiplication is done.

Step 1

1010, 0010 C=1 (small shifted right one place)

Add 1010 to result, result=1010

Is small zero? No so continue

Step 2

10100, 0001 C=0 (big shifted left, small right)

No add since C=0)

Is small zero? No, so continue

Step 3

101000 0000 C=1 (big shifted left, small right)

Add 101000 to result result=110010

Is small zero? Yes, so end

Answer is 110010 or 50, which is correct.

The reason for using the small number to check for additions is that it will reach zero sooner than larger number.

Implementing this in 6502 will result in the subroutine for 8 x 8 bit given here.

```
MS      BYTE     0    MS SMALL  MB BIG  MR RESULT 16BIT
MB      WORD     0    THESE NEED TO BE IN ZERO PAGE
MR      WORD     0    FOR GREATEST SPEED
MULT    LDY #0        ; Y USED FOR COMPARE AND ZEROING
        STY MB+1      ZERO HI BYTE OF MB
        STY MR        ZERO THE RESULT LO
        STY MR+1      ZERO THE RESULT HI
MULTL   LSR MS        SHIFT SMALL RIGHT
        BCS ADD1      IF CARRY THEN ADD BIG TO RESULT
MULTL1  CPY MS        IF SMALL ZERO THEN END
        BEQ FIN
        ASL MB        SHIFT BOTH LO AND HI
        ROL MB+1      BYTES OF MB LEFT INCL CARRY
        JMP MULTL     CONTINUE SHIFTIN AN ADDIN
ADD1    CLC           CLEAR CARRY FLAG FOR ADDITION
        LDA MB        GET MB AND ADD
        ADC MR        TO ACCUM AND
        STA MR        THEN RESULT
        LDA MB+1      SAME WITH HI BYTE INCL
        ADC MR+1      CARRY
        STA MR+1
        JMP MULTL1    JUMP TO BIG SHIFT AND CONTINUE
FIN     RTS           RESULT IN MR AND MR+1 LO HI BYTES
```

Numbers only

Lee Short of Cathays in Cardiff writes

Q I have recently written a program for my firm on my Amstrad 464 computer. My problem is that I would like to disable the *Escape* key and, at the beginning of the program, the user is asked to input a number between one and 12. If a letter is typed, I get a redo from *Start?* – how can I adapt my program to accept only numbers when required?

A The *Escape* key is disabled by including the *On Break GoSub* command as the first line of the program. For example

```
10 ON BREAK GOSUB 100
20 PRINT "THIS PROGRAM IS UNSTOPPABLE"
30 GOTO 20
100 PRINT "YOU HAVE PRESSED BREAK"
110 FOR T=0 TO 1000 NEXT
120 PRINT "BUT TO NO AVAIL"
130 RETURN
```

Your second problem can be solved by use of the following subroutine. Instead of *Input A*, use *GoSub 1000* and include this

```
1000 LOCATE 1 10 INPUT "ENTER NUMBER (1-12)" N$
1010 IF VAL(N$)=0 OR VAL(N$)>12 THEN GOTO 1000
1020 N=VAL(N$) N IS THE NUMBER ENTERED
1030 RETURN
```

This gets a string and then checks whether the first characters are numerical and less than 13. Otherwise the input is requested again, but by using *Locate* it is not too obvious to the user that a mistake has been made, ie, you don't fill up the screen with unwanted *Inputs*.

Linking Atari and Amstrad

A Harvey of Worcester Park, Surrey writes

Q I own a CPC 464 and a printer, but recently, a friend got an Atari STM, and it impresses me so much that I am seriously considering buying one. Is it possible to link the Amstrad CTM 640 colour monitor to an Atari 520 STM?

A The Atari ST colour output is standard RGB and its socket has the following pinout

1) Audio out, from the internal amplifier
2) Not connected
3) General purpose output from port A, bit 6, of the sound chip, uses TTL levels
4) Monochrome detect. If this pin is low the computer enters high res monochrome mode. Obviously for colour, you'll need to tie it high
5) Audio in to the internal amplifier, mixed with the output of the sound chip
6) Green output for RGB
7) Red output for RGB
8) Ground
9) Horizontal sync output
10) Blue output for RGB
11) Monochrome intensity output
12) Vertical sync output
13) Ground

Amstrad connection is

1) Red input for RGB, 2) Green input for RGB, 3) Blue input for RGB, 4) Sync, 5) Ground, 6) Lum.

So to connect the two together, red goes to red, green to green, blue to blue, and the two grounds are connected together. Pin six on the monitor needs to be held high as does pin four on the ST. I think the sync for the monitor goes to the vertical sync on the ST. If this does not work, try the horizontal sync.

As far as I know, there is no plug available to fit (see illustration) the 13 pin connector on the ST. It is possible to construct one from perforated board with $\frac{1}{10}$" pitch. Solder in the array of twelve pins and ignore pin 13 which is out of order and unnecessary since pin 8 is also ground. You will need an in-line 6 pin Din socket to make the connection to the monitor.



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Music for the MSX

Mark Jenkins looks at the packages available to help you get started on the MSX machines.



▲ Odyssey-K ▼ Muswriter

Despite the relative failure of the MSX system over there world-wide the standard is quite active particularly in France, Germany and Japan. A recent visit to the Paris Music Fair certainly showed that MSX is finding a lot of musical applications, along with the Thomson computers and a couple of other models not generally available in the UK.

The most professional packages available for the MSX series are the Yamaha CX6 related Midi packages – the new SFG-01 Tone Module and its related software for drum machine and synthesiser composition, sound editing and so on. An MSX sampler is on its way and several small independent companies are developing improved software which overcomes some of the limitations of Yamaha's original designs.

One of these limitations is that the Yamaha CX5 Music Computer stood outside the MSX convention by adding a cartridge port underneath the machine – this is where the FM synthesiser module fits. However it's now possible to buy a synth module separately and fit it using a small interface card, which you have to build yourself using about three pounds worth of circuit board and etching fluid. The Yamaha X Series Owners' Club have a free sheet giving information on how to do this.

So there's now a good path into MSX computer music – start with a cheap machine (a Canon, Sony, Mitsubishi or other model with two cartridge slots is best and many of these are now available at knock-down prices). Add an inexpensive software package which makes use of the micro's built-in three voice sound chip and if your interest in music continues, go for the Yamaha tone module, which features Midi and so allows you into the world of professional synthesisers too.

Two new packages from Rittor Music are worth looking at. The cartridge-based *PSG Muswriter* (£24.95) starts with a screen display of a stave with treble and bass clefs, key and chord name and a data box on the bottom of the screen. You can compose tunes using three voices by entering notes one at a time; five main pages are used in the data box to vary: 1) musical notation, 2) repeat symbols and rhythm, 3) chord, 4) time/key/title/load/save, and 5) display colour and volume mix.

The pages are accessed using the function keys 1–5, a green bar at the top of the screen shows memory remaining. To write a piece you choose a voice and note length, enter notes using the cursor up/down arrows and return key (the notes sound as you're entering them and the pitch is displayed to the right of the screen) and choose a volume from the dynamics page. Of course, it's possible to erase notes you don't want simply by using *Delete*, and you can type in a tempo using the number keys.

You can insert and delete entire bars, and choose from any of seven backing rhythms (only waltz can't be used when programming in 4/4 time) which play with a selection of white noise bursts. PSG has a very clear handbook but unfortunately there's no demo program, and the suggested 'music input example' in the handbook looks pretty complex.

But it's easy enough to punch notes in, and the backing chords and rhythms give a fairly complex end product. The screen displays are colourful and the handbook good, so the package represents a fine way into music and should be highly educational. It's for 16 to 64K machines.

Odyssey-K (£11.95) is a little more unusual and loads from tape. It's a real-time recorder which uses four banks of the computer's keys as a four-octave double music keyboard, and there's a metronome bleep to play along to as you record each of the three available tracks.

Compositions can be saved and re-loaded and there's a good demo of (what else?) *The Entertainer*. A 32K machine is needed for this program and, of course, once you've learned music theory from PSG, this is an ideal way to begin to stretch your 'live' playing abilities.

The pitch of each track can be transposed, you can erase and re-record a track, adjust tempo and volume mix, repeat sections, and change tones to some extent, using the *Env* command.

A pity that *Odyssey* won't be compatible with a clip-on mini keyboard such as the *Music Maker*, but it's still good fun with a neat screen display of an impressive-looking double keyboard and a very simple command layout.

DX7 owners will be interested to learn that Rittor also markets two Rom cartridges in the Shofuku series. Part 1 has 2 × 32 sounds including some good guitars, basses, metallic keyboard sounds, special effects, strings and winds, while Part 2 has another 64 sounds including more modern FM presets, Eastern sounds and synth effects.

Yamaha X-Series Owners' Club, Mount Avenue, Milton Keynes MK1 1JE. Tel 0908 71771.

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.



Bulletin boards for ST owners

David Wallin consults his mailbag, and explains ROS, discovers two BBs for the ST, and shows you how to transmit hi-res pictures over the PSTN

More correspondance to go through this week and it appears that I have an apology to make. It's to Compunet: the price of the Commodore modem has been £49.95 all year, apparently I must have said otherwise at some time. Sorry Compunet about this, and I hope it has not caused any problems.

Now for some information on a new BB operating on the Amstrad PCW 8256. First the board itself and then the ROS system that it runs under.

The board is called PCW ROS, the sysop is Mark Gregory, hours are 8am to 5.30pm, 8pm to 5.30am (24 hours soon). Catch it on 0902 788683 and at these rates: 300/300 (1200/75 soon).

ROS: the system

The BB runs under the Steve Fox ROS system. ROS is a new BBS written in Turbo Pascal. The Amstrad PCW8256 is one of the many computers which can use ROS, a friendly and nice piece of BBS, which new users should find logging on to easy. PCW ROS runs on a two-drive, Ram upgraded Amstrad PCW8256. This gives 368K of Ram disc and 1.2Mb of floppy disc storage.

The advantage of using the Ram disc to store the main code of the program, menus and messaging section is that it makes the speed of the board fantastic, with access time almost instant. The floppies are used for storing download software only. The board is probably the fastest in the country.

While PCW ROS does specialise in the 8256, it also contains information for other computers and subjects, including amateur radio, IBMs, Spectrums, Commodores, aircraft enthusiasts and more.

The sysop, Mark Gregory, can supply an installed version of the ROS system for the Amstrad PCW8256 at a cost of £15. For this he will require details of your modem and serial port. The cost is only to cover disc, copying, compiling and the two overlays required. Profit is not made as the program is public domain.

More details on buying the program will be available from Mark if you log on to PCW ROS and ask him. One problem with buying a compiled version rather than the source code is that you will not be able to make any modifications to it. Turbo Pascal is expensive to buy and so the compiled version may be the only option for most people.

He will also supply a copy of UKM7 on a disc for £7, which is cheaper than the download costs at 300/300, and again details will be available from Mark if you log on. He is also working on enabling *Mail232* users to download it because *Mail232* does not have proper download facilities. This will enable people to download the software without needing further expensive software to do it.

Bulletins boards are popping up all over the place for the Atari ST, including two which I've had correspondence about. The information about these two

The Commodore modem £49.95

boards was sent in by Harvey Mills of Slug, the ST London users group. The first board is ST London BBS which includes Slug.

Stephen Page is the sysop, and the board runs from midnight to 9am. The phone number is 01 443 2432, and speeds are 300/300 and 1200/75.

This board is purely for the ST and has downloads, etc, dedicated to it.

He also sent me some information on another BB on the ST, run by Microdeal (the software company). This is not an ST dedicated board, though it does contain a lot of ST relevant information and some IBM stuff as well. This is the Microdeal BBS, running 24 hours, on 0726 65422, 300/300 and 1200/75.

Finally it was also pointed out to me that both these boards have the public domain (free!) program *XModem*, for the ST, available for download.

Now for some answers to questions left on Prometheus, the BB where you can contact me directly. Firstly from Mike Lang: "Is it possible to transmit high-res pictures from an Amstrad over the PSTN?"

Yes it is, Mike, but some knowledge of the serial port and memory map of the computer(s) involved will be required. A program will have to be written to perform two simple tasks, read the value of a pixel and transmit it. This is enclosed in a simple loop to include the entire screen.

In pseudo code, the transmit program would look something like this:

```
10 LOAD in screen
20 FOR loop-start to finish
30 A=PEEK (loop)
40 SEND A
50 NEXT
```

Line 10 loads in a high-res screen
Line 20 sets up a loop, from the start of screen memory (start) to the end of screen memory (finish)
Line 30 reads the location of the screen
Line 40 sends the viaue of A to the serial port (modem)
Line 50 loops

The receiving program is similar and looks something like:

```
10 FOR loop-start to finish
20 RECEIVE A
30 POKE loop, A
40 NEXT
```

Line 10 sets up the loop
Line 20 gets a value from the serial port (modem)
Line 30 pokes that value to the screen
Line 40 loops

The *screen memory* is the location in the computer's memory in which the information about the screen is stored. The technical or hardware reference manual for the computer should give the screen memory addresses. In theory it should be possible to send any computer's screen (Amstrad, BBC, etc) to any other computer (Commodore, Spectrum, etc). The receive program would need adaptions as the resolutions of the screens are likely to be different.

Although it may seem quite complicated, it isn't really, a simple program does all the complicated stuff. One point, even at 1200/1200 full duplex, sending a screen does take quite a long time. I hope the above is of some use to you, Mike, and anyone else who wishes to send high-res screens over the PSTN.

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New Releases

Pick of the week

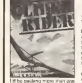
John Cook looks through this week's new arrivals

Amstrad CPC

Program *Miami Dice* **Type** Simulation **Micro** Amstrad CPC **Price** £12 99 **Supplier** Bug Byte, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB

Program *Glider Rider* **Type** Arcade **Micro** Amstrad CPC **Price** £8 95 **Supplier** Quicksilva, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB

If I was trying to knock out the HQ of a highly suspect arms manufacturing multinational you can be sure that



I'd be packing more than one motorbike/hanglider and nine hand grenades – but still, in show biz them's the breaks. This is the Amstrad version of the Spectrum game that has the best sound ever on the 128/Plus 2 sampled effects and all No such luck on the CPC, but the well designed 3D graphics and smooth scrolling are still there

Program *Colossus 4 0 Bridge* **Type** Strategy **Micro** Amstrad CPC **Price** £11 95 (tape) £14 95 (disc) **Supplier** CDS Software, CDS House Berkett Road, Doncaster DN2 4AD

Program *Eidolon* **Type** Arcade **Micro** Amstrad CPC **Price** £9 99 (tape) £14 99 (disc) **Supplier** Activision UK, Activision House, 23 Pond Street, Hampstead London NW3 2PN

Program *Streethawk* **Type** Arcade **Micro** Amstrad CPC **Price** £8 95 **Supplier** Ocean Software 6 Central Street Manchester M2 5NS



Program *Lightforce* **Type** Arcade **Micro** Amstrad CPC **Price** £8 95 **Supplier** Faster Than Light, Sedgley Road East, Tipton West Midlands DY4 7UJ

Another Amstrad version of a Spectrum title – but wow is it good or what?

Colourful graphics without hideous attribute problems aren't as rare on the CPC as they are on the Spectrum – so the effect isn't initially, as mind blowing but again, it is the graphic design that makes this program really stand out

Bright, detailed and fast – OK, so it's autofire on, brain off (mostly) but shoot 'em ups don't usually come this good FTL – the company that makes games as good as its sweatshirts Catchy, eh? I was in advertising in my last reincarnation you know

Atari

Program *Starquake* **Type** Arcade **Micro** Atari XL/XE **Price** £8 95 tape £12.95 disc **Supplier** Bubble Bus 87 High Street, Tonbridge Kent TN9 1RX

Atari ST

Program *Starglider* **Type** Arcade **Micro** Atari ST **Price** £24 95 **Supplier** Rainbird, 74 New Oxford Street, London WC1

Program *Mighty Mail* **Type** Application **Micro** Atari ST **Price** £29 95 **Supplier** Microdeal Box 68 St Austell PL25 4YB

If you're running a business or a club, then a mailing list is probably one of the most useful applications you can have Now from Microdeal exclusive UK importers of Michtron ST product, comes a computerised mailing list for your ST, *Mighty Mail*

Essentially the program is a database type program (with numbers of records only limited by space – that's around 1,400 on a floppy, up to 65 000 on a hard disc) in which you can assign flags to each file For instance, if it was a database of computer users you'd set flags according to which computers and peripherals were owned by individuals *Mighty Mail* has up to 16 user defined flags

The clever bit comes when you want to print out, say, address labels for a particular mail shot What about if you want to hit QL owners only? Or maybe QL owners that have disc drives? Simple, you simply set the program to print out files with these flags set, and away you go

As with all good ST software, the whole thing is run under Gem so is fairly straightforward and easy to use – although as with many Michtron manuals I found the content and design a little under par for the money

Commodore 64

Program *Soldier One* **Type** Arcade **Micro** Commodore 64 **Price** £9 95 (tape) £14 95 (disc) **Supplier** American Action AB, Box 10090 200 43 Malmö Sweden

It's always nice to see offerings from beyond these shores – quite often they have a flavour strikingly different from the run of the mill English games – take Ere Informatique and Infogrammes for example

Not so with *Soldier One* I'm afraid – it draws heavily from *Beachead I* and *II* to produce as bland a number I've seen in many a day

It consists of seven screens which from Behind the Cannon (deserving of a Mike Yarwood award for originality, alone) to Enter the Island (so

Living the American

Program *Hardball* **Type** Arcade **Micro** Spectrum **Price** £8 95 **Supplier** Advance 17 Staple Tye, Harlow, Essex

It's a well known fact that the Americans alone are responsible for the serious moral decline in this country

First they bring us that American Football business with people giving each other five all over the place, messages from sponsors and that nasty amber coloured fluid with wood chips in, or something that is probably the second worst lager in the world And now? Now, rounders

But being Americans, they don't call it rounders Never let it be said that the Yanks don't miss an opportunity to call a spade a manual excavating implement given half the chance No They call it hardball

Good grief Grown men dressed in very very silly clothes, all with genetically manipulated hands, standing around, not playing cricket It's a scandal still, at least you don't have to wear any silly clothes at all or be genetically defective to play the computer version

Hardball on the Spectrum is an excellent version of the US Gold game that made the

Dream

charts earlier this year The graphics on the pitching (bowling to you) screen are almost identical to the Commodore and although the fielding screen is relatively poor, the gamesplay is identical

It s for one or two players, so if you re getting into the game on the telly, then this must be the one to play during the commercials

Get down Stay down Rock and roll Cool it Nuke the Reds Coke is it God Bless America Is there no hope for the youth of today? I m convinced it's all a Channel 4/CIA conspiracy

primitive that it would be funny, apart from the fact that you're being asked to pay £9 95 for the deal) simply fail to inspire

State-of-the-art in Sweden doesn't seem to stretch to disabling *Restore* either

Passable at budget price – at a tenner this is a big no-no

Program *Herakles – The Early Years* **Type** Adventure **Micro** Commodore 64 **Price** £6 95 **Supplier** Tunstallsoft, 17 Victoria Park Road, Tun stall, Stoke on Trent ST6 6DX

Program *Streethawk* **Type** Arcade **Micro** Commodore 64 **Price** £8 95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS

Program *The Great Escape* **Type** Arcade/Adventure **Micro** Commodore 64 **Price** £8 95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS

Program *Fist II – The Legend Continues* **Type** Arcade **Micro** Commodore 64 **Price** £9 95 **Supplier** Melbourne House, 60 High Street Hampton Wick, Kingston upon Thames, Surrey KT1 4DB

Program *Trap Door* **Type** Arcade **Micro** Commodore 64 **Price** £7 95 **Supplier** Piranha, 4 Little Essex Street, London WC2R 3LF

You ve seen the TV program – at last – now why not play the Commodore version of this off beat lateral thinking title.

Lots of large colourful sprites and puzzles that ll get you thinking A refreshing change from the kill and maim routine

Program *The Archers* **Type** Bookware **Micro** CBM 64 **Price** £9 95 **Supplier** Mosaic Publishing, 187 Upper Street, Islington, London N1 1RQ

The Archers Surely one of the great British institutions? Personally I feel that anyone that hasn t experienced this wondrous parody of the English Way of Life is missing a very significant experience

Will David and Sophie ever have a full 'adult relationship? Isn t it about time that Brian was knocked down by a bus? When is Nelson going to make his first million? Is Jack ever going to propose to Caroline? These and other questions constantly come up in that grand-daddy of all soap operas that makes EastEnders look like a story of everyday London folk

The problem is, whatever did Mosaic think it was doing turning this ancient cornerstone of the Establishment into a computer game?

Long memories will recall that *Adrian Mole* was a product of Mosaic/Level 9, and it is unfortunate that *The Archers* suffers from the same lack of memory problems

The whole of the Bookware concept is not that you have complete control over events, but you guide a character through a particular situation after the scenario has been described, via a series of three choices

Thus, the thing acts a little like an expert system – but immediately, on systems that are predominantly tape based, runs straight into memory problems

In the case of *The Archers*, the solution to this problem is to have four parts to the thing – in each part you (as a trainee scriptwriter) take on the role of one of four characters and must guide them through various trials and tribulations, with a sharp weather eye on the audience ratings

Keep the ratings high and the controller of Radio Four happy and you progress onto the next character If the audience declines or the BBC deems you have done something too naughty to be put on air (like lacing David's and Sophie s drinks) you're fired

Great though *The Archers* is (and any fan of the program will love it), memory has been wasted on average graphics, and the limited choices that remain allow you to finish the game in an easy afternoon

One afternoon s entertainment is just not good enough for the average person – so unless you are an avid Archers' fan, you might do better to save your tenner and spend it down The Bull on a few pints of Shires

MSX

Program *Football Manager* **Type** Strategy **Micro** MSX **Price** £8 95 **Supplier** Endurance Games, 28 Little Park Gardens, Enfield, Middx EN2 6PG

Spectrum

Program *Twice Shy* **Type** Adventure **Micro** Spectrum **Price** £9 95 **Supplier** Mosaic, 187 Upper Street London N1 1RQ

Program *Colossus 4,0 Bridge* **Type** Strategy **Micro** Spectrum **Price** £11 95 **Supplier** CDS Software, CDS House, Beckett Road, Doncaster DN2 4AD

Program *The Great Escape* **Type** Arcade/Adventure **Micro** Spectrum **Price** £7 95 **Supplier** Ocean Software 6 Central Street Manchester M2 5NS

Program *Dragon's Lair* **Type** Arcade **Micro** Spectrum **Price** £9 95 **Supplier** Software Projects, Bearbrand Complex Allerton Road, Woolton Liverpool L25 7SP

Program *Streethawk* **Type** Arcade **Micro** Spectrum **Price** £7 95 **Supplier** Ocean Software 6 Central Street, Manchester M2 5NS

Program *Dandy* **Type** Arcade **Micro** Spectrum **Price** £7 95 **Supplier** Electric Dreams, 31 Carlton Crescent, Southampton SO1 2EH

Pseudo-hobbitry in adventures

Suddenly I found myself in a small, damp and malodorous drungeon, facing the hideous claws and scarlet teeth of a leering banshee To defend myself, I had nothing but an unlit torch a sausage roll and a small length of string Frankly, I felt extremely bored

Don t tell Tony Bridge, but I ve become rather impatient with adventure games They seemed to show such promise once, back in the days when the first mainframe adventures appeared In those days arcade games were still at the stage when a small square crept between two rectangles, and they called it ping-pong

Since then, arcade games have developed almost unrecognisably but some of those earliest adventures still sell – because the latest products are not significantly better

Of course, there have been one or two developments: input parsers have marginally improved, and graphics have been added (to limit the imagination?) But the only really serious novelty has been the development of multi-user systems, which mean that any time you play you stand a good chance of being knocked about the head by any interfering wally who happens to be idling at the modem that afternoon pretending to be an orc

There s something about wizards, and orcs that bringe out the wally in everyone, and there s apparently something about the imagination of programmers that won't let them escape from the cliches of pseudo-hobbitry

It was a clever person who first saw that a data array could represent a maze of rooms and that players could have fun exploring it with manifold dangers on the way

Why have so few programs tried to develop or enlarge this concept, though? Why, for example, do games still mostly consist of plodding from one location to another, as though the choice between N E S and W was an interesting one?

Why can t the locations of the array represent subtly different emotional or moral situations, through which players must pick their way with care? In early days, memory limitations meant that if a game was to last for any time, locations needed to be revisitable

Now, though, large memories are the norm on new machines, and vaster stores are easily accessible from disc Counting the kilobytes is no longer a major worry

It won t be long, surely, before someone with a taste for words takes advantage of this new freedom, and fills a whole floppy with a labyrinth of words, revelling in the knowledge that they now have the space to go beyond the simplicities of orc-avoiding and warlock-zapping

When they do I hope they have the courage to jettison the "You-are-there" convention, too Once, this must have seemed a brilliant idea for actually involving the player in the action but by now it s become rather limiting

Most people must become rather weary of the computer s untruthfulness in claiming that they re in the middle of a desolate moorland, when they re actually quite snug in their own front room

More seriously, this convention has prevented adventure games from producing any memorable characters When "you" is at the centre of the story this makes for a pretty bland and faceless protagonist, I'm afraid Other characters may make their appearance, but generally as ciphers The player hardly thinks of them except as possible helps or hindrances At worst, they will waste your time by continually sitting down and singing like that infuriating Thorin

When a genuinely original piece of interactive fiction appears we will recognise it as new and exciting because it will find a way of letting a distinct personality speak through the computer

You will offer advice, maybe, which will sometimes be accepted and sometimes rejected The illusion will be created of a whole, complex and probably rather difficult person – someone you can care for, worry about and occasionally become infuriated with

When this character arrives, we'll have the germ of a computer novel, and the program will find an audience far wider than the current band of pixie freaks

George Simmers

NEXT WEEK

Competition

Got an ear for a tune and a way with words? If so, you could win a copy of *The Archers*, the computer soap opera from Mosaic.

THE ARCHERS

THE COMPUTER GAME

Jet Man

From David Jones, author of Ultimate's *Jet Pac* for the BBC, comes *Jet Man*, a follow-up for you to type in and play.

Games

Hot off the duplicating machines comes the Spectrum version of Software Projects' chart-topper *Dragon's Lair*, Red Max, the follow-up to The Last V8 from Code Masters, and more golf simulations, in the form of *Mean 18* from US company Accolade.

Hackers





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